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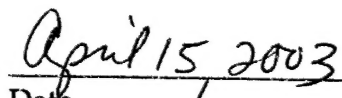
A DESCRIPTIVE STUDY OF THE HEALTH CARE INTEGRATOR ROLE IN THE  
UNITED STATES AIR FORCE

Jennifer J. Hatzfeld


APPROVED:

  
Mickey L. Parsons, PhD, R.N.

  
Carol A. Reineck, PhD, R.N.

  
Date

APPROVED:

  
Merle S. Olson, PhD  
Dean, Graduate School of Biomedical Sciences

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A DESCRIPTIVE STUDY OF THE HEALTH CARE INTEGRATOR ROLE  
IN THE UNITED STATES AIR FORCE

A  
THESIS

Presented to the Faculty of  
The University of Texas Graduate School of Biomedical Sciences  
At San Antonio  
In Partial Fulfillment  
Of the Requirements  
For the Degree of  
MASTER OF SCIENCE IN NURSING

By  
Jennifer Joy Hatzfeld, MEd, RN-C

San Antonio, Texas

May, 2003

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**A DESCRIPTIVE STUDY OF THE HEALTH CARE INTEGRATOR ROLE  
IN THE UNITED STATES AIR FORCE**

**Publication No. \_\_\_\_\_**

**Jennifer Joy Hatzfeld, M.S.N.**

**The University of Texas Graduate School of Biomedical Sciences  
at San Antonio**

**Supervising Professors: Mickey L. Parsons, PhD, R.N.  
Carol A. Reineck, PhD, R.N.**

**The Health Care Integrator (HCI) role was created to ensure each Air Force base  
was staffed with a resource person for the development and maintenance of sound**

healthcare practices through the use of disease management, case management, evidence-based practice and population-based healthcare. The elements of the position are well supported by the literature, but the level of implementation is currently unknown. This descriptive study measures the level of implementation of the role throughout the Air Force using quantitative techniques, coupled with open-ended questions.

The response rate to the survey sent to all HCIs in the Air Force was 50.5% (n=55). Findings indicated that a wide variation exists in the tasks that are performed by HCIs throughout the Air Force, and the mean response of how well the HCIs felt the role had been implemented in their own facility was 3.5 on a scale of 1 to 5. Of those who answered the questions, 87% (n=45) felt the role had been implemented fairly well or better. Additional duties and resistance from members of the organization were the top barriers identified; population health data and the Health Care Integrator course were reported as the top two facilitators to implementing the role. Additional duties were also varied, with formal administrative roles requiring the most amount of time; and, as rank increased, so did the mean time spent accomplishing formal administrative duties.

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## I. INTRODUCTION

### *Overview*

According to the report entitled *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century* accomplished by the Institute of Medicine (2001), the state of American healthcare is appalling. Both the tremendous insurgence of new information in science and technology, and the additional chronic diseases in an aging population have been identified as the major contributors to this current condition. Most unfortunate, however, is the lack of coordination within the healthcare system to meet the increased healthcare demands of the population with the ever-changing scientific discoveries and technology. This study seeks to examine the current state of coordination within the Air Force healthcare system. Healthcare within the United States Air Force has some unique characteristics, but from a management perspective, it mirrors the state of civilian healthcare. Finances and personnel are in short supply, while the needs of the population, especially among family members and retirees, continue to increase.

Less than five years ago, leaders in the Air Force Medical Service developed a position entitled "Health Care Integrator" (HCI) to provide healthcare facilities at each Air Force base with a resource for the development and maintenance of sound healthcare practices (personal communication, T. Page, May 2, 2002). According to the current job description, the primary duties of the HCI include supervising case management, facilitating the implementation of evidence-based practice, and

evaluating both the health of the Air Force Base population as well as the facility's effectiveness. The existence of the HCI role and its accomplishments have been praised by the Air Force Assistant Surgeon General for Nursing Services, Brigadier General Barbara Brannon, in her most recent Congressional Testimony to the Committee on Appropriations (Air Force Medical Service, Presentation to the Committee on Appropriations Subcommittee on Defense United States Senate, 2003).

Truly, the HCI position has the potential to revolutionize the way primary care is provided, and the Air Force is uniquely poised to demonstrate that such a position can successfully improve the health of a well-defined population and the quality of patient care. In fact, the HCI role addresses the recommendations for improvement called for by the Institute of Medicine (2001). Unfortunately, while elements of HCI position appear well designed, the actual implementation of the role remains unclear.

Christianson, Pietz, Taylor, Woolley, and Knutson (1997), voice this same observation as they discuss the lack of results from programs designed to manage chronic illness.

Personal experience and confidential conversations with four HCIs from different areas reveal frustrations with running unrelated programs, managing clinics, or performing clinical functions. Additionally, they report a lack of support or resistance within the organization to implement new programs outlined in the HCI job description. One of the two HCI coordinators located at the Air Force Surgeon General Population Health Support Office confirmed this observation. She has also seen and heard this dissatisfaction through her frequent staff assistant visits and through the

discussions in electronic mail between HCIs (personal communication, P. Caple, April 2, 2002).

Still, individual experiences and frustrations cannot be assumed as representative of all HCI positions. According to Nolan, Johnson, Coleman, Patterson and Dang (2000), nurse leaders must continually provide evidence to describe the outcomes of programs and processes within healthcare. While anecdotal evidence and experience can provide helpful insights into the value of certain programs, it cannot adequately support the need for change within an organization. Ingersoll (1996) reports that evaluation research has become a vital component in decisions to continue support to certain programs.

In order to provide an objective assessment of the level of implementation of the HCI role, a research-based evaluation of the activities currently performed by those in position is necessary. Results can be used to assist nurse leaders in the Air Force Medical Service to make sound, fact-based decisions about the future of the HCI position. Additionally, this study can serve as a basis for future studies about this innovative role, including the impact on population health and patient care practices.

### ***Statement of the Problem***

How well the HCI role has been implemented throughout the Air Force is unknown. Or, as Rossi, Freeman, and Lipsey (1999) phrase this common question of evaluative research, "is what's supposed to be happening actually happening?" (pg. 98).

### ***Purpose Statement***

The purpose of this research is to identify the level of implementation of the HCI role across the Air Force by examining the tasks that are routinely accomplished. Additionally, barriers and successes in the implementation and practice of the HCI role will be examined for possible recommendations.

### ***Research Question***

The primary question to be addressed is to what extent has the HCI role been implemented across the Air Force? Subquestions include:

- What have been facilitators to implementing the HCI role?
- What have been the barriers to implementing the HCI role?
- What elements of the HCI role are performed least often?
- What additional duties do those in the HCI role currently perform?

### ***Definitions***

HCI Role: The Health Care Integrator role is a professional nursing position established by the Air Force Medical Service, which includes the oversight of disease and case management, facilitation of evidence-based medicine and the management of population-based care. The most current job description is contained in Appendix A.

Additional Duties: Responsibilities that serve a purpose either within the medical group or outside of the medical group, and may not be directly related to the HCI role.

Level of Implementation: The extent to which an individual reports performing tasks in the HCI role.

Military Treatment Facility (MTF): The phrase used by the military to describe the organization responsible for healthcare provided at each military installation.

Case Management: a coordinated process that links individuals that have complex medical needs with the appropriate resource, developing and monitoring the implementation of the plan (Huston, 2001; and Amonkar, Madhavan, Rosenbluth, Odedina & Simon, 2000).

Disease Management: a process of providing patient care and services for a particular population with a certain disease using evidence-based practices. The intended results are to improve the patient's quality of life, as well as conserving resources (Anand & Nissenon, 2002; and McClatchey, 2001).

Evidence-Based Practice: Integrating the cumulative results of research on a particular subject and expert clinician opinion to guide medical and nursing practice (Burns & Grove, 2001).

Population-Based Care: Providing care to a defined population using epidemiologic principles. This is accomplished by managing both resources and the identified subpopulation to improve health outcomes through primary care and prevention. It is also referred to as community-

oriented primary care or population-based medicine. (Wagner, 1995; Young, 1998).

### ***Assumptions***

1. The HCI role exists in some form at every Air Force base.
2. The individual HCI, while not requiring an advanced nursing degree, functions in an expanded nursing role, similar to the advanced practice nurse.

### ***Limitations***

1. Only those willing to participate completed the study.
2. The job description and recommended rank were revised during the course of this study.
3. The data collection tool is lengthy to accommodate the tasks included in the HCI job description.



## II. REVIEW OF LITERATURE

Health needs for Americans have evolved, requiring more efficient delivery of population-based healthcare and preventive medicine (Institute of Medicine, 2001). The HCI role is suited to achieve this goal through a variety of functions, including the oversight of disease and case management, facilitation of evidence-based practice and the management of population-based care. A review of the literature suggests that each of these elements can positively affect patient outcomes and provides strong support for the Health Care Integrator (HCI) role. However, implementation of innovative positions and programs can be problematic. These aspects are also explored for common threads that provide insight into the current state of the HCI role. Finally, elements of Roger's (1995) theory of the diffusion of innovation and role theory are presented, as these theories guide the study.

### *Support for the HCI Role*

In pursuit of efficient healthcare delivery, multiple solutions have been proposed. These include disease management, case management, evidence-based practice, and population-based health care. For this review, each is examined individually, although theoretical concepts are often interrelated. In fact, Radzwill (2002) suggests that integration of disease management and case management results in improved patient outcomes.

As defined previously, disease management is a way of providing patient services for individuals with a certain disease, using evidence-based practices. As

Anand and Nissenson (2002), McClatchey (2001) and Huston (2001) point out, the intended results are to improve the patient's quality of life, as well as conserving resources. Shelton (2002) argues that the positive results of disease management published in the literature "tend to lack rigorous scientific discipline" (pg. 461). Despite this criticism, tangible, positive outcomes are reported for patients with a variety of chronic illness, including diabetes, hypertension, and even renal disease (Anand & Nissenson, 2002). According to Reeder (1999), 80% of the healthcare costs can be attributed to just 20% of the population. This being said, disease management certainly makes economical and theoretical sense. Christianson, Pietz, Taylor, Woolley and Knutson (1997) suggest that the limited success is due to the difficulty implementing these programs rather than the program itself, describing their own efforts in beginning a new program to manage hypertension services.

Case management is a coordination process that links individuals with complex medical needs with the appropriate resource (Huston, 2001). Amonkar, et al. (2000) go a step further and propose that the case manager also monitors the implementation of the plan of care. The published results of case management outcomes indicate a benefit to the patient and to a more efficient use of resources. An analysis accomplished by Gonzalez-Calvo, Remington, Woodman, Hansford and Jackson (1997) concluded that there was a significant correlation between a case management program for African-American pregnant women and number of problems solved, leading to good birth outcomes. Huggins and Lehman (1997) summarize the findings of three separate

studies and found that outpatient case management demonstrated a total cost savings of 61.7% through a decrease in admissions by 58%, a decrease in emergency room visits by 50%, and an average decrease in length of stay by 7 days. These figures underscore the potential benefits of case management in healthcare.

Evidence-based practice is medical and nursing practice that is based upon the results of research and expert clinician wisdom (Burns & Grove, 2001). As healthcare organizations are facing the need to provide care more efficiently and effectively, evidence-based practice has been pursued even more. The results of this practice have consistently shown to improve patient outcomes, although as McGuirk, King, Govind, Lowry and Bogduk, (2001) discovered in their analysis of acute low back pain, the outcomes are only slightly improved from normal good care, "but in the long term, evidence-based care achieves clinically and statistically significant gains" (pg. 2615).

Population-based care is another approach to improving efficiency within healthcare. This practice includes blends of disease management and evidence-based practice, but with an emphasis on using epidemiologic methods to discover the needs of a subpopulation and the resources needed to care for them (Young, 1998). This is usually accomplished in the primary care setting, using primary and secondary prevention efforts. Hall (1998) summarizes the results of this type of management among asthmatics, which shows a decrease in emergency care and admissions with increases in patient satisfaction rates. Hammer (2001) reports findings from a similar program for a defined geriatric subpopulation, and found that while emergency

department visits increased slightly, total acute days of care reduced by 33% with considerable overall savings to the institution.

As previously defined, the HCI role includes elements of all of these healthcare management techniques: disease management, case management, evidence-based practice and population-based care. Although the HCI role is broad in nature, the value of each of the elements is well supported through research literature. However, even the most well-designed program or process cannot be effective unless it has truly been implemented within an organization and institutionalized – a part of routine practice.

#### ***Implementation and Institutionalization***

The HCI role does not require an advanced nursing degree, although a master's degree in a healthcare field is "highly desirable" (Air Force Medical Service, Health Care Integrator Job Description, 2002, paragraph 2.1). Also, a one-week training program has been developed to ensure each HCI has the additional knowledge and tools to adequately perform the tasks outlined in the job description. In addition, the Air Force has assigned five nurses each year for the past three years to the Air Force Institute of Technology Civilian Institution Program to earn a master's degree in community health nursing in order to function as an HCI. It is evident that Air Force leadership has recognized that the HCI role requires the autonomy, clinical knowledge, and decision-making skills in an expanded nursing role, similar to an advanced practice nurse (APN). The HCI role is not technically an APN role. However, there similarities

in function, and the APN experience in implementing an innovative nursing role can provide valuable insight into this study.

APNs, such as nurse practitioners and clinical nurse specialists (CNSs), have certainly experienced challenges through the process of implementing an innovative role. Barnum (1998), describes the controversy surrounding role of the APN even within nursing itself. Russell and Hezel (1994) suggest that the APN roles are different in every setting, even within the same field.

Regardless of the debate, literature is full of attempts to define the role and characteristics of the APN. Scott (1999) completed a descriptive research study of 724 CNSs finding elements of all five traditional role components, but most often as expert clinician; then educator, consultant, administrator, and researcher. The role of the nurse practitioner in the acute care setting has also been examined both in the United States (Hravnak, Rosenweig, & Baldisseri, 1996), Canada (van Soeren & Micevski, 2001), and within the specialty field of oncology (Kinney, Hawkins & Hudman, 1997). All three studies found a very broad scope of practice among the respondents.

Despite the different settings and wide variety of roles, two themes emerge. First, there is a definite need to clearly define the role of the APN in each setting to appropriately utilize the role and ensure job satisfaction (Page & Arena, 1991; Russell & Hezel, 1994). Secondly, Page and Arena (1991), Russell and Hezel (1994), Hravnak, Rosenweig and Baldisseri (1996), Kinney, Hawkins and Hudmon (1997), as well as van Soeren and Micevski, (2001), who have studied the role of the APN in a range of

settings, agree that organizational support can either be a barrier to the implementation of the APN role, or a successful facilitator.

Page and Arena (1991) label a barrier to implementing the CNS role as a lack of organizational support: an example they provide are requests to accomplish supervisory or clinical duties rather than accomplishing their intended role. Positive support from the organization, however, can facilitate the implementation of the APN role through the use of efforts such as interdisciplinary teams and formal recognition (Russell & Hezel, 1994).

Goodman and Steckler (1989) describe institutionalization as the final stage of adopting an innovation, when "the program and the organization reach equilibrium" (pg. 64). Goodman, McLeroy, Steckler and Hoyle (1993) suggest that program success is directly linked to the institutionalization potential of the organization. They point out that when an organization does not institutionalize programs, not only does it cost the organization time, energy and resources to implement the unused program, potential benefits can never be realized.

A lack of institutionalization, or implementation, of a position or program within an organization has tremendous implications. Although each element of the HCI role is well supported by literature, if it is not being used as it was intended, the benefits will never materialize. With the need to utilize personnel and resources even more efficiently in healthcare, especially in the military, it is vital to first evaluate the design and implementation of the HCI role in order to demonstrate the intended results.

### *Gaps in the Literature*

The HCI role is a unique blend of patient care management and at this time, no formal studies have been conducted on the role of the HCI or the actual tasks that are performed. As shown previously, the literature supports the notion that the defined role should provide positive health results; but it also indicates that an innovative, expanded nursing role can be difficult to implement. It is impossible to tell if the HCI role has been fully implemented without a descriptive research study that describes the tasks currently performed.

### *Theoretical Framework*

There are two theoretical frameworks that guide this study: Roger's (1995) Diffusion of Innovations and Role Theory. Using these two distinct theories provides a balance to viewing the implementation of HCI role from two distinct perspectives. Roger's Diffusion of Innovation provides a way to view the implementation process from the organizational level, while Role Theory provides insight into the implementation at the individual level.

#### *Diffusion of Innovation*

According to Roger's (1995) Diffusion of Innovation, there are four main components: the innovation, communication channels, time and a social system. Rogers suggests that there is a distinct, linear pathway that one travels from beginning knowledge of each innovation to confirming the decision that was made about adopting

the innovation. This pathway Rogers has labeled the “innovation-decision process” (pg 161). The innovation-decision process contains five steps, illustrated in Figure 1.

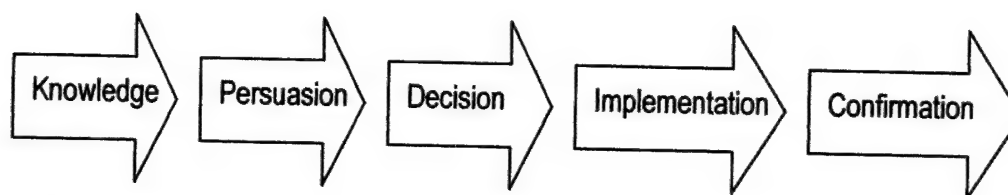


Figure 1 A simplified model of the stages in the Innovation-Decision Process, from Rogers (1995, pg 163). *Diffusion of Innovations*. New York: The Free Press.

Knowledge of the innovation is the first step, which is the point when an individual gains an awareness of a particular innovation. The next step is persuasion, as the individual develops an opinion about the innovation, either positive or negative. Next, a decision must be made to 1) adopt the innovation; or 2) reject the innovation by seriously considering the innovation and deciding not to implement it; or 3) by not truly considering adopting the innovation at all. Implementation of the decision is the next step, when the innovation is actually put into use. The confirmation stage is the final stage, when the individual re-evaluates the decision, and continues using the innovation, or reverses the previous decision.

The aspect of Roger’s theory of the Diffusion of Innovation that directs this study is the implementation phase of the Innovation-Decision Process. While the concepts of the HCI role are not necessarily innovative, the role itself can be perceived as new to the



organization, and thus, an innovation (Rogers, 1995). In this instance, an organization (the Air Force Medical Service) has completed the decision to adopt the HCI role.

However, Rogers points out that in organizations, a decision to adopt an innovation does not necessarily mean that implementation immediately follows.

Within an organization, Rogers divides the implementation phase into three separate steps: "redefining and restructuring", "clarifying", and "routinizing" (pg. 392).

### *Role Theory*

Role theory is actually a collection of concepts and subtheories, such as role strain, role attitudes, and gender roles, used to understand and describe social order (Hardy & Conway, 1988). The subtheory used within this study is that of role making, which has also been defined as role redefinition, role modification, or role evolution. According to Hardy and Conway (1988), role making also contains a five-phase process, illustrated in Figure 2.

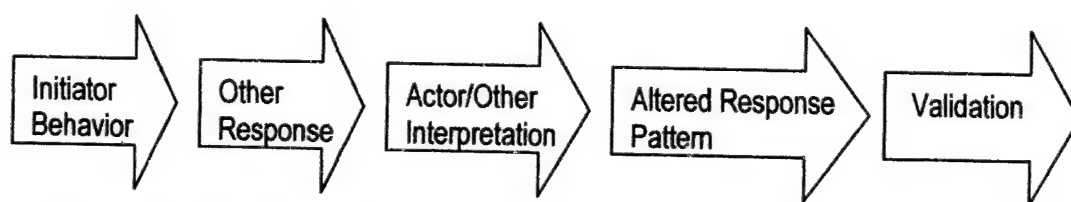


Figure 2 The five-phase process of role making (Hardy & Conway, 1988, pg 70). *Role Theory*. San Mateo, California: Appleton & Lange.

In this theory, the first phase is an action of an individual (the initiator), which may or may not be consistent with past behaviors or expected behaviors. Next, the "other", or responder, responds in a certain way that again may or may not be

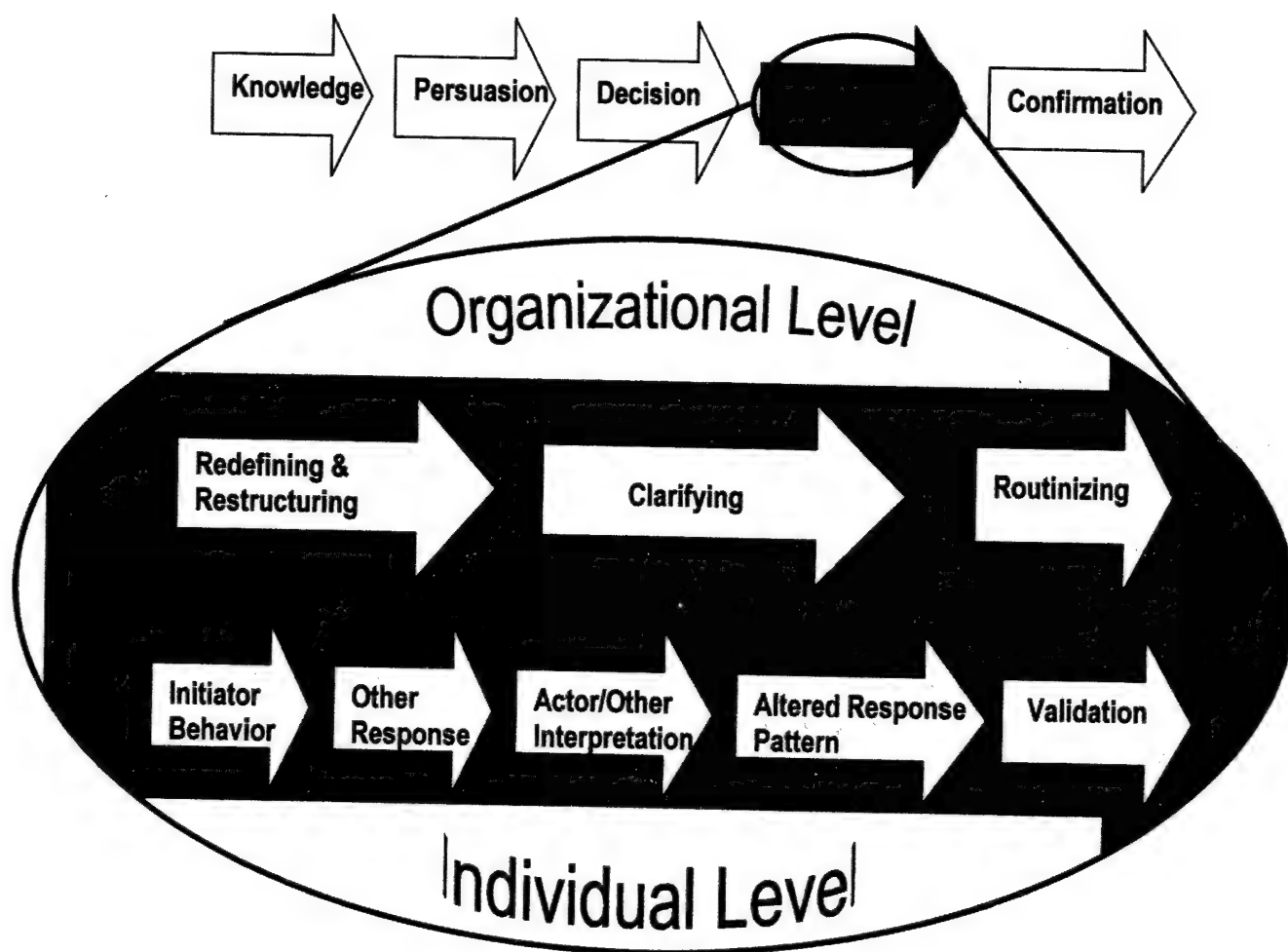
consistent with past behaviors or expected behaviors. The third phase allows for both the actor and the "other" to interpret the behavior of the other, and then in the next phase, to act or respond based upon that interpretation. In the final phase of validation, new expectations are developed, and the new relationship is acknowledged by the behaviors of others. Although not explicitly stated, this process is not completely linear, as additional responses and behaviors may be necessary before the final phase can be achieved.

### *Links between Framework and Study*

With a large organization, such as the Air Force, it is difficult to observe the level of implementation of an innovative program from observing the organization as a whole. Another way to evaluate a level of implementation is to survey each individual HCI to evaluate what point he or she is within the role making process. Based upon the individual results, the organizational level of implementation can be inferred. Combining the implementation process defined by Rogers (1995) with the individual role making process described by Hardy and Conway (1988), provides a way to determine the implementation level of the HCI role at the organizational level, while assessing the level of implementation at the individual level. This can be visualized in the diagram, Figure 3.

The individual steps within the implementation phase of either the organization or the individual are not necessarily linked directly, although these may correlate closely. However, it is important to realize that unless the individual reaches the

“validation” step of the role making process, “routinizing” cannot occur for the organization. The implementation phase is the focus of the study: whether the innovation, the HCI role, has become a routine part of the organization’s activities, by evaluating if the individual HCI has reached the validation phase of the role making process.



*Figure 3* Theoretical view of the implementation level of a particular role, at both the organizational level and individual level using elements from Rogers (1995, pg 163) and also from Hardy & Conway (1988, pg 70).

### III. METHODS

#### *Study Design*

This is a descriptive study using quantitative research methods and open-ended questions. A questionnaire containing a task inventory was used to quantitatively describe the elements of the role performed by Health Care Integrators (HCIs) in the Air Force and how often these tasks are performed. Open-ended questions were also asked to discover additional issues that provide insight into the implementation and the function of the HCI role.

#### *Sample*

To increase reliability of task inventories, such as the task inventory contained in the HCI Questionnaire, a large sample size is recommended (Brannick & Levine, 2002). In order to achieve the largest possible sample, the survey was sent to all HCIs within the Air Force identified by the Air Force Population Health Support Division (PHSD). Each HCI received the questionnaire by electronic mail and was asked to complete the questionnaire electronically. To ensure optimum response rates, the Chief of the PHSD sent an electronic message to all HCIs, encouraging their participation in the study. The Principal Investigator sent a reminder message one week after the survey was originally mailed, and the HCI coordinator sent another reminder message two weeks after the survey was originally mailed. At three weeks, a final reminder was sent, and the due date was extended by one week.

### *Study Variables and Conceptual Definitions*

Because this is a descriptive study, the variable of interest is simply the activities of the HCI. However, additional information is needed to fully describe the sample and indicate the degree of generalizability of the results. These data elements include demographic information and organizational context.

Demographic information is important to fully describe the characteristics of those in the HCI role. Additionally, portions of this data, including the rank and gender, can be compared to the existing database of HCIs maintained by the Population Health Support Office. This comparison will evaluate the extent that the respondents reflect the total HCI population. In this study, the demographic information of the respondents was contrasted to the known demographic data of the entire population, for comparison. The HCI demographic data elements used in this study include:

- gender
- rank
- educational level
- previous experience or training

Another important element to examine is raised by Mark, Sayler and Smith (1996), as well as Kitson, et al. (1998) and McCormack, Kitson, Harvey, Rycroft-Malone, Titchen and Seers (2002). Their research has shown that the context of the organization can influence the effectiveness of implementing a new program. Additionally, size and number of overseas facilities can also be compared to the entire sampling frame to

further indicate representativeness of the sample. The organizational factors in this study include:

- size of the facility
- location of facility
- operation tempo (additional military responsibilities) at the facility
- clinical staffing levels at the facility
- organizational structure

### ***Measurement Tool and Operational Definitions***

All data elements were collected from the questionnaire developed for this study. The questionnaire includes demographic information, organizational characteristics, a task inventory, and open-ended questions. The completed HCI questionnaire consists of three major elements, and can be found in Appendix C.

Demographic and organizational factors make up the first major element, providing insight into the characteristics of the HCI and the facility. This allows for comparison against the total population, and also provides information to describe the demographics of HCIs in general. Figure 4 lists the demographic and organizational factors that comprise this first section, and the questions that are used to measure them.

Figure 4. Elements of demographic and organizational characteristics with the corresponding question.

gender of the HCI	<p>What is your Gender?</p> <p><input type="checkbox"/> M    <input type="checkbox"/> F</p>
rank of the HCI	<p>What is your rank?</p> <p><input type="checkbox"/> O-5</p> <p><input type="checkbox"/> O-4</p> <p><input type="checkbox"/> O-3</p> <p><input type="checkbox"/> other: _____</p>
educational level of the HCI	<p>What is the highest level of formal education you have received?</p> <p><input type="checkbox"/> BSN</p> <p><input type="checkbox"/> MSN</p> <p><input type="checkbox"/> non-nursing master's degree</p> <p><input type="checkbox"/> other: _____</p>
previous experience or training of the HCI	<p>How many total years/months have you been an HCI?</p> <p>_____ years          _____ months</p> <p>How long have you been in your current HCI position?</p> <p>_____ years          _____ months</p>

<p>previous experience or training of the HCI, continued</p>	<p>What training have you received to function as an HCI? (mark all that apply)</p> <p> <input type="checkbox"/> completed HCI course at Sheppard AFB  <input type="checkbox"/> on the job training with a previous HCI  <input type="checkbox"/> case management experience (___ years)  <input type="checkbox"/> community health experience (___ years)  <input type="checkbox"/> population health experience (___ years)  <input type="checkbox"/> AFIT Community Health program  <input type="checkbox"/> other describe: _____         </p>
<p>size of the facility</p>	<p>How many Tricare PRIME beneficiaries (including active duty) are enrolled to your MTF?</p> <p>_____ beneficiaries</p> <p>Of the total number enrolled to your MTF, how many Tricare PRIME beneficiaries (including active duty) are within your population as an HCI?</p> <p>_____ beneficiaries</p>
<p>location of facility</p>	<p>Where is your facility located?</p> <p> <input type="checkbox"/> within the Continental United States, 50 miles or less from a major medical center (a facility that offers major surgeries, trauma care, and rehabilitation)  <input type="checkbox"/> within the Continental United States, more than 50 miles from a major medical center (a facility that offers major surgeries, trauma care, and rehabilitation)  <input type="checkbox"/> outside the Continental United States (what country? _____)         </p>



<p>operation tempo of the facility</p>	<p>Operational tempo (or ops tempo) can be defined as additional military responsibilities that are required to be accomplished, above and beyond the usual mission. This can often be seen in the number of personnel deployed and/or the number of troops assigned to your base. Using this definition, how would you rate the operational tempo at your MTF?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Very low (no clinical staff deployed, no additional troops)</li><li><input type="checkbox"/> Fairly low (up to 10% of clinical staff deployed, and/or additional troops are as many as 10% of your total beneficiaries)</li><li><input type="checkbox"/> Medium (up to 20% of clinical staff deployed, and/or additional troops are as many as 20% of your total beneficiaries)</li><li><input type="checkbox"/> Fairly high (up to 30% of clinical staff deployed, and/or additional troops are as many as 30% of your total beneficiaries)</li><li><input type="checkbox"/> Very High (over 30% of clinical staff deployed, and/or additional troops are more than 30% of your total beneficiaries)</li></ul>
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<p>staffing levels at the facility</p>	<p>Staffing levels can be defined as actually having the number of personnel that are authorized by a manning document. Using this definition, how would you rate the staffing levels at your MTF?</p> <p>___ Very low (less than 70% of authorized positions are filled)</p> <p>___ Fairly low (more than 70%, but less than 80%, of authorized positions are filled)</p> <p>___ Medium (more than 80%, but less than 90%, of authorized positions are filled)</p> <p>___ Fairly high (more than 90%, but less than 100%, of authorized positions are filled)</p> <p>___ Very high (all authorized positions are filled)</p>
<p>organizational structure</p>	<p>Whom do you report to?</p> <p>___ Director of Medical Services (SGH)</p> <p>___ A squadron commander</p> <p>___ A flight commander</p> <p>___ A nurse manager</p> <p>___ Other (please list _____)</p> <p>How many individuals are between yourself and the MTF Commander in your organizational chart (do not count yourself or the MTF Commander)</p> <p>_____ positions</p>

The second major element of the questionnaire contains a task inventory, which includes additional duties. The task inventory was developed using a variety of approaches, since at the time of development the job description for the HCI role was in its third revision (personal communication, R. McCurry, July 10, 2001). Since it would have been unwise to base a survey solely on an outdated or unapproved job description, observation and interviews were also used to establish the elements of the task analysis and additional duties. Observation, interviews and background materials are three well-established ways to develop this type of inventory (Brannick & Levine, 2002).

To develop the task inventory of the HCI questionnaire, the existing job description was used to develop a preliminary task list. Then, three different HCIs from different locations and from different backgrounds were observed performing their job, and then interviewed to revise or add new tasks. For this section, respondents are asked how often they perform each activity on the following scale:

- 0 - do not perform
- 1 - Rarely perform the task (complete this task less than 1 hour per month)
- 2 - Not often performed (complete this task 1 to 2 hours per month)
- 3 - Performed fairly often (complete this task 3 to 4 hours per month)
- 4 - Performed quite often (complete this task 5 to 10 hours per month)
- 5 - Performed very often (complete this task more than 10 hours per month)

This scale allows for the quantitative analysis of the individual tasks that are performed by HCIs using descriptive statistics. Not all tasks included in the tool are based upon the HCI job description, so this can provide additional insight into what is actually being performed by a majority of the HCIs, and which tasks are not performed.

One additional question asks the participants to rate how well the HCI role has been implemented at their facility, on a scale of one to five. This allows for a concise summary of the implementation level for the respondents, and a way to quantify the perceived implementation across the Air Force.

The final section of the HCI questionnaire is a series of open-ended questions to provide more in-depth feedback. Because there is no existing data set about the implementation of the HCI role, or even the role itself, there is no established set of issues or concerns that can be assessed. This approach provides a way for the principal investigator to elicit feelings and opinions about the HCI role and its implementation without an existing framework.

A pilot study was accomplished with five HCIs for two reasons. First, this assisted in the refinement of the data collection tool to ensure the instructions were clear, the questions understood by the respondents, and the scale was appropriate. The pilot study also assured the data collection process using electronic mail was successful.

Based on the results of the pilot study, minor formatting changes were made to the task inventory, one question re-worded, and a note to continue the survey was placed on the bottom of every page except the last. Additionally, it was discovered that

information needed to answer questions used to elicit the staffing levels and operational tempo were very difficult for the HCI to collect, and were a major barrier to the completion the entire survey. As a result, these questions were completely revised, to ask only for the respondents' perception of staffing levels and operational tempo, rather than exact data.

No change in the data collection process was necessary, as the document containing the survey was compatible with the programs used by the respondents in the pilot study, the electronic mail system worked well, and there were no problems discerning the responses to the questions. To establish the face validity of the tool, the task inventory was also confirmed with the developer and instructor of the HCI course.

### ***Ethical Considerations***

Approval was received from both the university institutional review board as well as the Air Force to collect information from the sample. Additionally, preliminary approval to accomplish the study was obtained from two key stakeholders in the HCI position: the Population Health Support Division of the Air Force Medical Service, and the HCI Course developer and coordinator at Sheppard Air Force Base.

All HCIs were contacted via electronic mail, and each subject was provided with a written explanation of the study, and invited to participate. It was emphasized that their participation was strictly voluntary, and that their decision to participate would not be used to determine their employment status or affect their performance feedback

reports. The HCI questionnaire contained the statement "Completion of this questionnaire indicates your consent to participate in this study" (Appendix C).

Subjects were also informed that responses would be kept confidential, that the information would not be connected with their name or location, and all data collected will be reported as group data. In order to ensure confidentiality, the Department of Nursing Research received completed surveys and any identifying information, including electronic identifiers, were removed. The survey was numbered in the order received and then forwarded to the Principal Investigator.

Because the data collection tool contained open-ended questions about the HCI role, there was the potential that some respondents might provide negative feedback. By using the survey electronically, there was a slim possibility that the responses might be viewed by the individual's supervisor, which could result in negative performance reports. Because of this, respondents were provided the option to print the questionnaire, returning the completed survey via United States Postal Service, if they desired. The respondent only needed to notify the principal investigator, and a stamped, addressed envelope would have been sent to the requested address. Since only the respondent is completely aware of his or her circumstances, this decision was best made by the individual. To ensure confidentiality of the responses, both the master contact list and the completed questionnaires were kept separately and secured in a locked cabinet.

### *Data Analysis*

The data collection tool contains demographic and organizational information as well as questions using a Likert-type scale, all of which can be analyzed using descriptive statistics. These were computed using the Statistical Package for the Social Sciences (SPSS). The frequency distribution as well as the mean and median of each item were used to describe the demographic and organizational characteristics, and how often each task is accomplished by the HCIs. Box-and-whisker plots are used to display these responses graphically. Each item in the data collection tool stands alone, and no subscales were used; the headings in the tool are only used to correlate with the job description.

Another important element of the data collection tool is the open-ended questions at the end of the questionnaire. Responses from these questions are classified into major categories by grouping the responses. As the major themes emerge, these provide valuable insight into the HCI role, and can become the basis for additional studies of the role and the implementation process.

#### IV. RESULTS

##### *Response Rate*

Of the total number HCIs originally identified; only 109 could be contacted through electronic mail due to personnel moves or other technical problems. Of these 109, 55 completed surveys were returned, a return rate of 50.5%. This response rate was satisfactory, considering that during the time the data was collected the United States military participated in one of the largest military deployments since World War II in preparation for Operation Iraqi Freedom.

The process of using electronic mail to send and receive a survey worked fairly well, with two minor exceptions. First, even though all correspondence between with Principal Investigator and the HCIs was conducted through the Office of Nursing Research, four respondents returned their completed survey directly to the Principal Investigator. To maintain anonymity, these surveys were immediately forwarded to the Office of Nursing Research and then permanently deleted. Secondly, two completed surveys contained corrupted information, although this only affected the individual's score on three of the 40 tasks; all other responses in these two surveys contained usable information. All of the responses were returned by electronic mail; there were no requests to use the postal service.



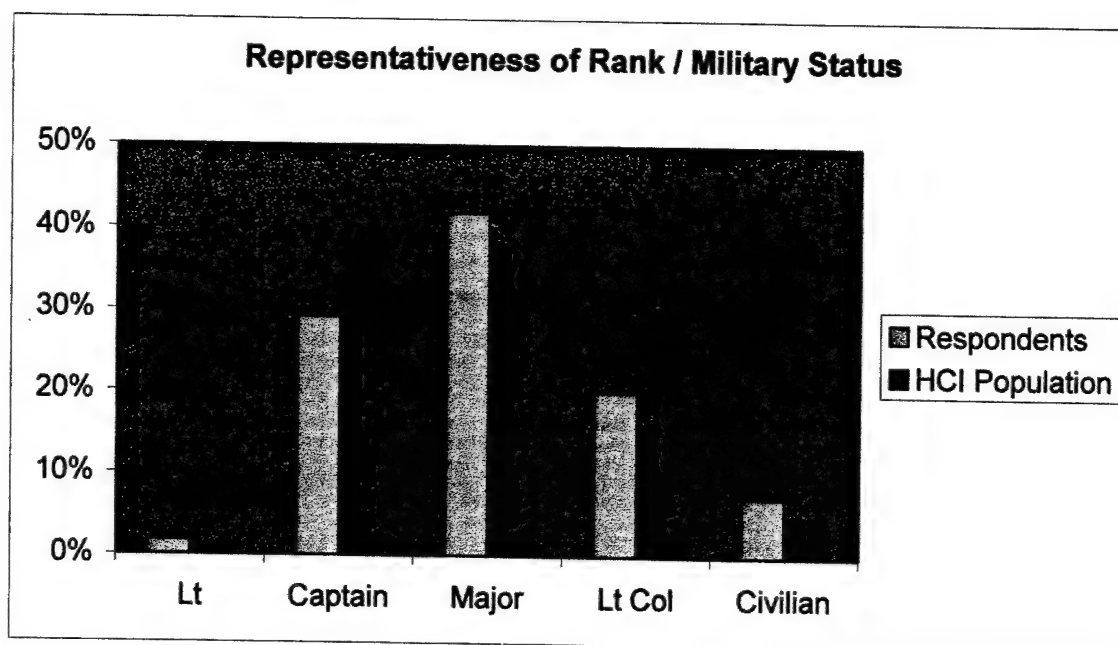
### *Description of Sample*

The quantitative data was analyzed to compare the respondents with the total population of HCIs, describe the characteristics of those in the HCI role, determine the tasks most often accomplished by the HCIs, and identify the additional duties that were most often performed. Each of these areas is discussed separately.

### *Demographics and Organizational Characteristics*

The demographics of the individual HCI were intended to compare the respondents with the known information. From the responses, gender and rank provide a way to compare those who participated in the study with the entire HCI population.

The gender of those who responded was 18.2% male and 81.8% female, which closely reflects the known percentages of 20% male and 80% female of all HCIs in the Air Force. The rank of those who completed a survey was 2% Lieutenant, 29% Captain, 42% Major, and 20% Lieutenant Colonel, with 7% civilians also completing the survey. According to the most recent data base of all HCIs, the ranks are, 1% Lieutenant (Lt), 40% Captain, 38% Major, and 16% Lieutenant Colonel (Lt Col), and 5% civilian. These percentages are remarkably similar, and can be visually compared in Figure 5.



*Figure 5* Distribution of rank or military status between survey respondents and total HCI population.

The location of the facility is another characteristic that can be compared between participants in the study and the total HCI population. Of those who responded to the survey, 20% (n=11) were stationed outside of the Continental United States, with 80% (n=44) stationed within the Continental United States. Compared with the total HCI population, 77% are located within the Continental United States, and 23% located in Hawaii, Alaska or another country.

Both demographic information and facility location represented in the surveys that were completed parallel the information known about the entire HCI population, which increases the generalizability of the study as a whole.

Other demographic characteristics identified as a result of the study included educational level, with 43.6% (n=24) reporting a master's degree in nursing, 32.7% (n=18) with a non-nursing master's degree, 20% (n=11) with a bachelor's degree in nursing, and 3.6% (n=2) reporting a different degree. The most commonly reported training received was the one-week HCI course offered by the Air Force, which had been attended by 89.1% (n=49) of respondents.

Experience in either case management, community health or population health was reported by 25.5% (n=14) of respondents. Experience in the HCI role varied widely, from 2 months to 66 months, with a mean response of  $20 \pm 13.7$  (mean + or - S.D.). Time in current position also varied from 2 months to 52 months, with a mean response of  $17 \pm 11.6$ . Most remarkable is the extreme variability, as evidenced by the standard deviation. One individual reported having been an HCI for longer than the position has existed, so it is unclear if this individual acted in a similar capacity before the position was formally developed.

The HCI position within the organizational chart is another element that can suggest level of implementation. Of the participants in the study, 34.5% (n=19) answered they reported to a squadron commander. 25.5% (n=14) report to a flight commander, while 23.6% (n=13) report to the Director of Medical Services. The remaining 16.4% (n=9) report to a different position, such as the chief nurse, a group practice manager, or directly to the medical group commander. 58.2% of respondents (n=32) report only one or fewer positions between themselves and the commander,

30.9% (n=17) reported two positions, and 10.9% (n=6) reported three or more individuals in a reporting chain between themselves and the commander.

Operational tempo and staffing levels of Primary Care teams were two important elements to discern, since these can directly impact the resources to fully implement the HCI role. Staffing of Primary Care teams was rated as "Very Low" or "Fairly Low" by 24.1% of respondents (n=13), "Medium" by 31.5% (n=17), and "Very High" or "Fairly High" by 44.5% (n=24). Operational tempo was rated as "Very High" or "Fairly High" by 29.6% of respondents (n=16), "Medium" by 42.6% (n=23), and "Very Low" or "Fairly Low" by 25.9% (n=14).

#### *Health Care Integrator Tasks*

Each task was rated on a scale from 0 (do not perform) to 5 (complete this task more than 10 hours per month). From the responses, it was evident that the tasks accomplished by the different HCIs varied widely. Although each task was statistically examined individually, headings from the job description provide a natural way to divide the numerous tasks. These headings have been incorporated into the item numbers, which assisted with the keying of the results, and also allow for ease of comparison between items. These item numbers, actual tasks, means, medians and percentiles, are located in Appendix D. Throughout the text, however, box and whisker plots were used to graphically represent each set of tasks, and they are also divided by the headings from the job description.

### *Box and Whisker Plots*

Box and whisker plots are unique graphs, and allow for visual representation of the median, the spread, symmetry and outliers (Burns & Groves, 2001). In the box and whisker plots used in this study, a solid dark line represents the median. A shaded box both below and above the median represents the interquartile range of the responses, or the midspread. In some responses, the value of the inner quartiles may be the same value as the median. In this case, the upper portion or lower portion of the shaded box may not be evident. The outer quartiles are expressed as single lines called the "whiskers", and extend from the box to the highest and lowest values, excluding outliers. If these values are the same as the midspread, the whiskers may not be evident. Outliers are expressed as an open circle, and extreme values are expressed as an asterix.

Item TD-1 in Figure 6 is an excellent example of each of these elements: the median is evident by the solid black line; the interquartile range is expressed in the shaded box above the median. In this example, the lower interquartile is the same value as the median, so the shaded box does not extend below the median. The higher quartile is the same result as the top boundary of the interquartile, so no whisker is needed, although the lower quartile extends to the score of "3", represented by the bottom whisker. There is one outlier with a score of "2", and one extreme value with a score of "0".

*Identify Demographic Needs and Health Status of Population*

## Tasks to Identify Demographic Needs and Health Status of Population

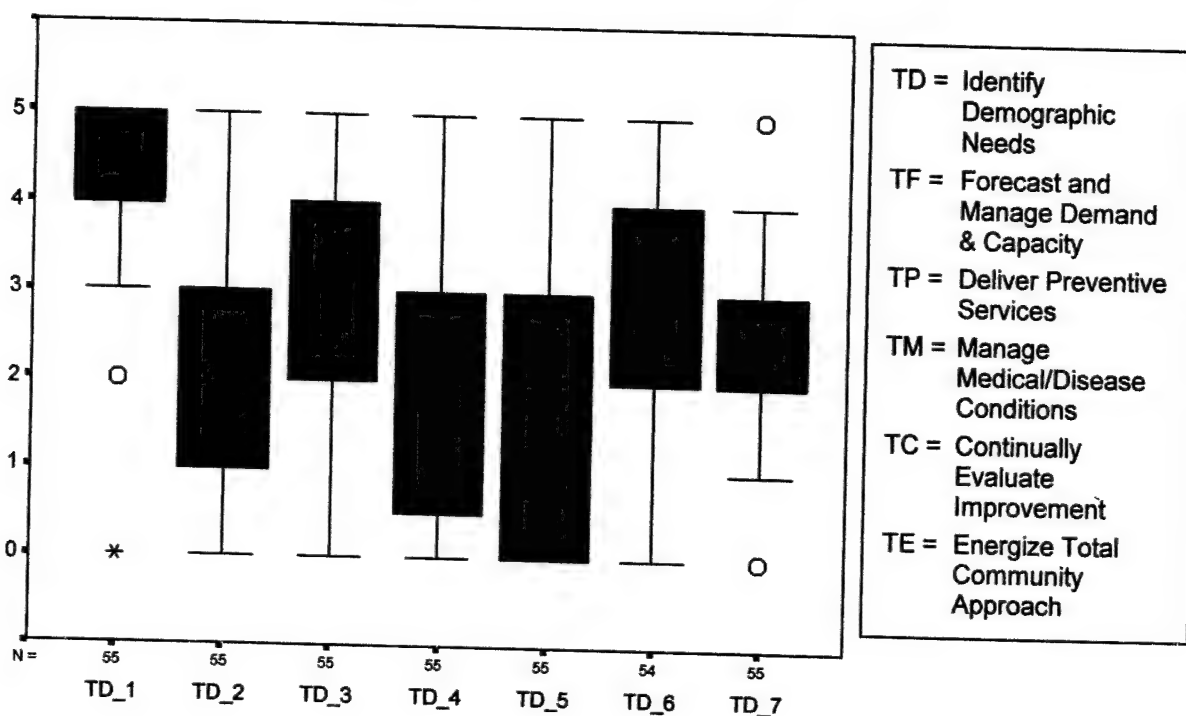


Figure 6 Box and whisker plot demonstrating how often individual tasks are performed to identify demographic needs and health status of population.

The first item, (TD-1) was rated as the one item most often performed by all HCIs, with a median score of 4.0 [interquartile range: 4 - 5], and a mean score of 4.2. The extreme value represents one individual who reported this information was not used, as they had identified an alternative method of collecting similar health data that was felt to be more accurate. Of all the identified tasks in this study, this item was one

of the four items with the lowest variability; 76% of respondents (n=42) reported accomplishing this task "quite often", or "very often"

Item TD-4, using Health Enrollment Assessment Report (HEAR) surveys, and item TD-5, using reports from the Health Care Information Line (HCIL) were least likely to be used by the HCIs with mean scores of 1.8 and 1.6, respectively, with the most variability. The median score for item TD-4 was 2 [interquartile range: 0 – 3]; the median score for item TD-5 was 1 [interquartile range: 0 – 3]. However, 27.3% of respondents (n=15) reported using the HEAR survey at least fairly often, and 27.3% (n=15) reported using information from the HCIL at least fairly often. Only six respondents (11%) reported using both the HEAR surveys and HCIL reports fairly often or very often.

*Forecast and Manage Demand and Capacity*

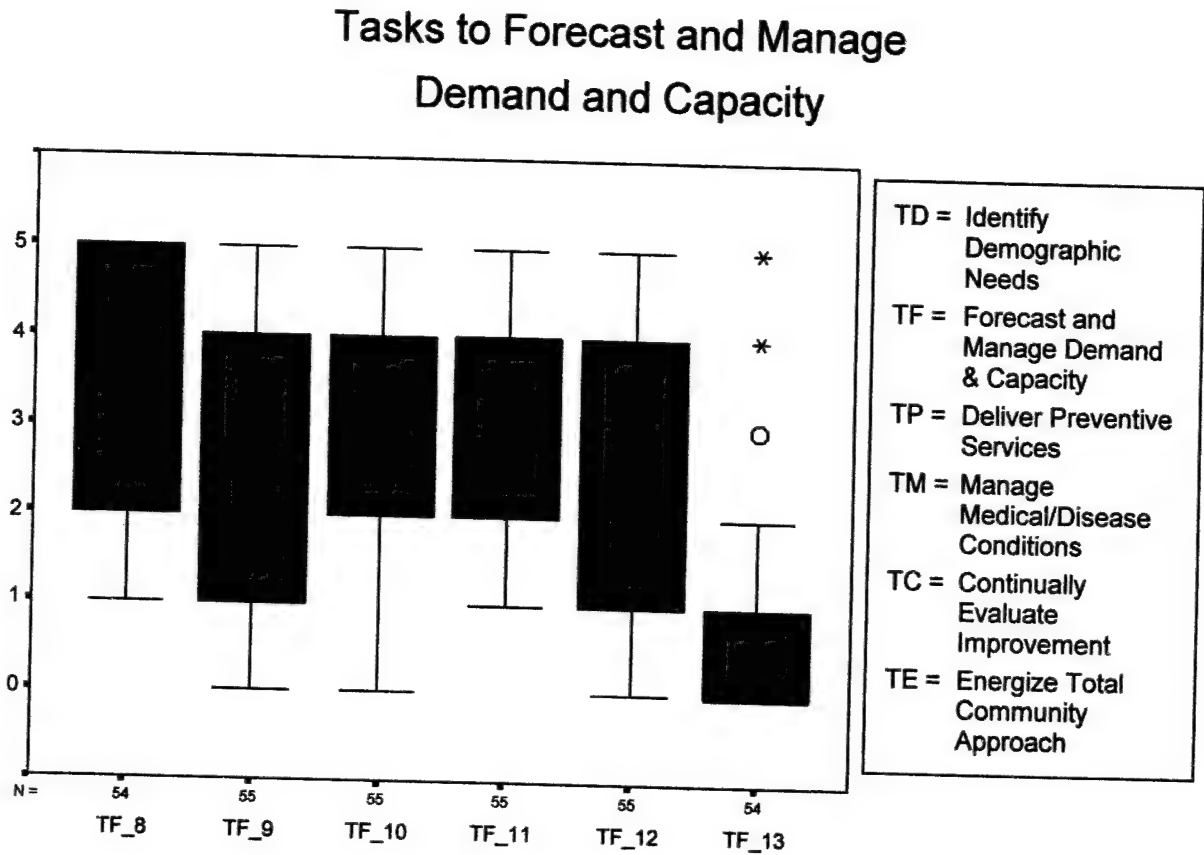


Figure 7 Box and whisker plot demonstrating how often individual tasks are performed to forecast and manage demand and capacity.

The responses to the tasks that forecast and manage demand and capacity reinforce variability of how often each of these tasks are performed between HCIs. One interesting note is the response to item TF-13 that asks the individual to rate how often they conduct coding audits. The median response to this question was 0 [interquartile range: 0 – 1], with a mean response of 0.9—considerably lower than any of the other



tasks. While a 57.4% of respondents (n=31) reported not performing this activity at all, four individuals (7.3% of respondents) reported performing this task "quite often" or "very often".

### *Deliver Preventive Services*

#### Tasks to Deliver Preventive Services

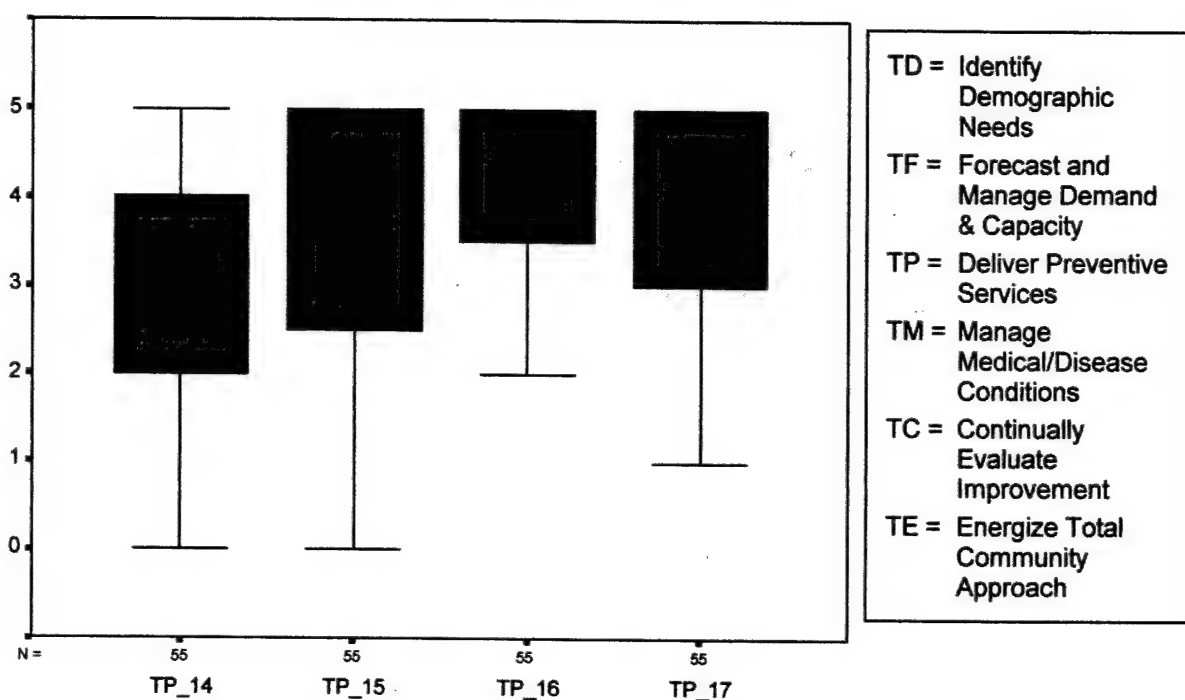
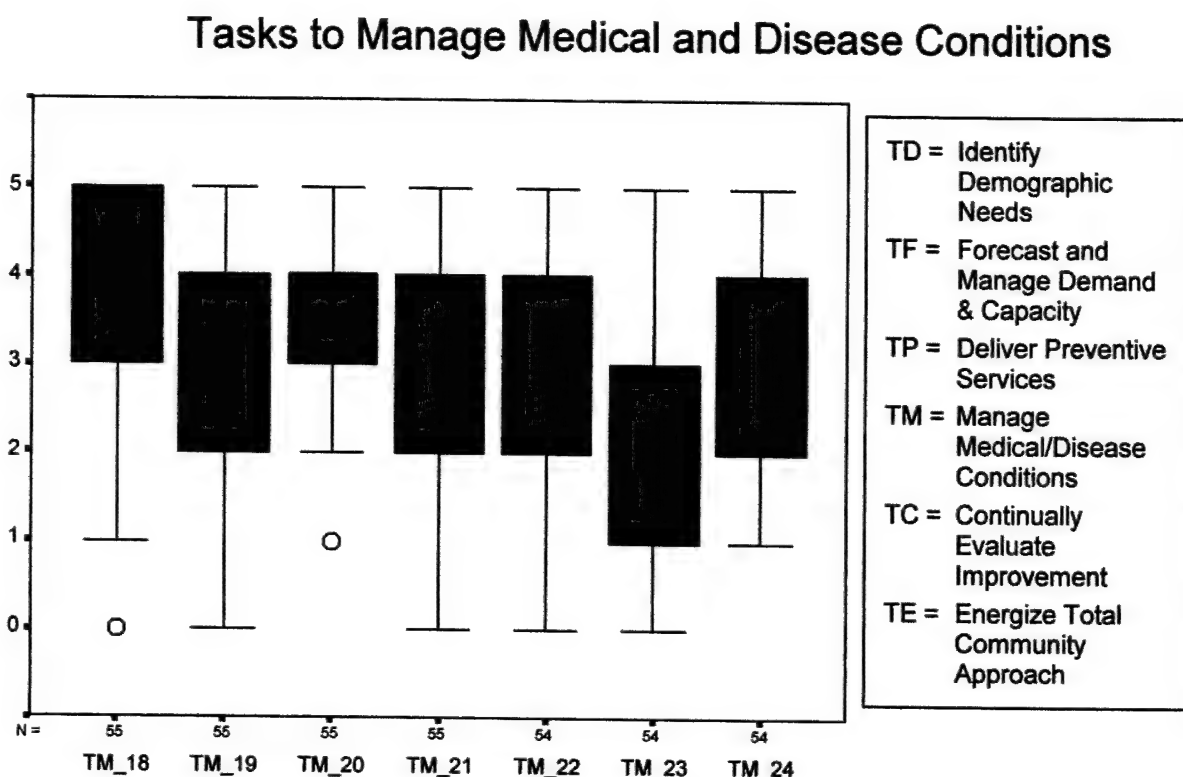


Figure 8 Box and whisker plot demonstrating how often individual tasks are performed to deliver preventive services.

Overall, item TP-16 was rated as the second highest task performed by HCIs with a mean score of 4.2, and a median score of 4 [interquartile range: 3 – 5]. Item TP-16 asks the HCI how often they interpret data to provide information to individual PCM

teams or clinics. Also scoring fairly high was item TP-17 with a mean score of 3.6, and median score of 4 [interquartile range: 3 - 5]; this item contains the task of reviewing clinical preventive services provided to the entire population for comprehensiveness.

### *Manage Medical and Disease Conditions*



*Figure 9* Box and whisker plot demonstrating how often individual tasks are performed to manage medical and disease conditions.

One of the two items with the highest median scores in this category was TM-18, promoting the use of evidence-based clinical practice guidelines, with a median score of 4 [interquartile range: 3 - 5], and a mean score of 3.6. Item TM-20 is the other task in

this section that also had a high median score. This task is to provide input into the adaptation of clinical practice guidelines. The median score of item TM-20 was also 4 [interquartile range: 3 – 5], with a mean score of 3.5.

### *Continually Evaluate Improvement*

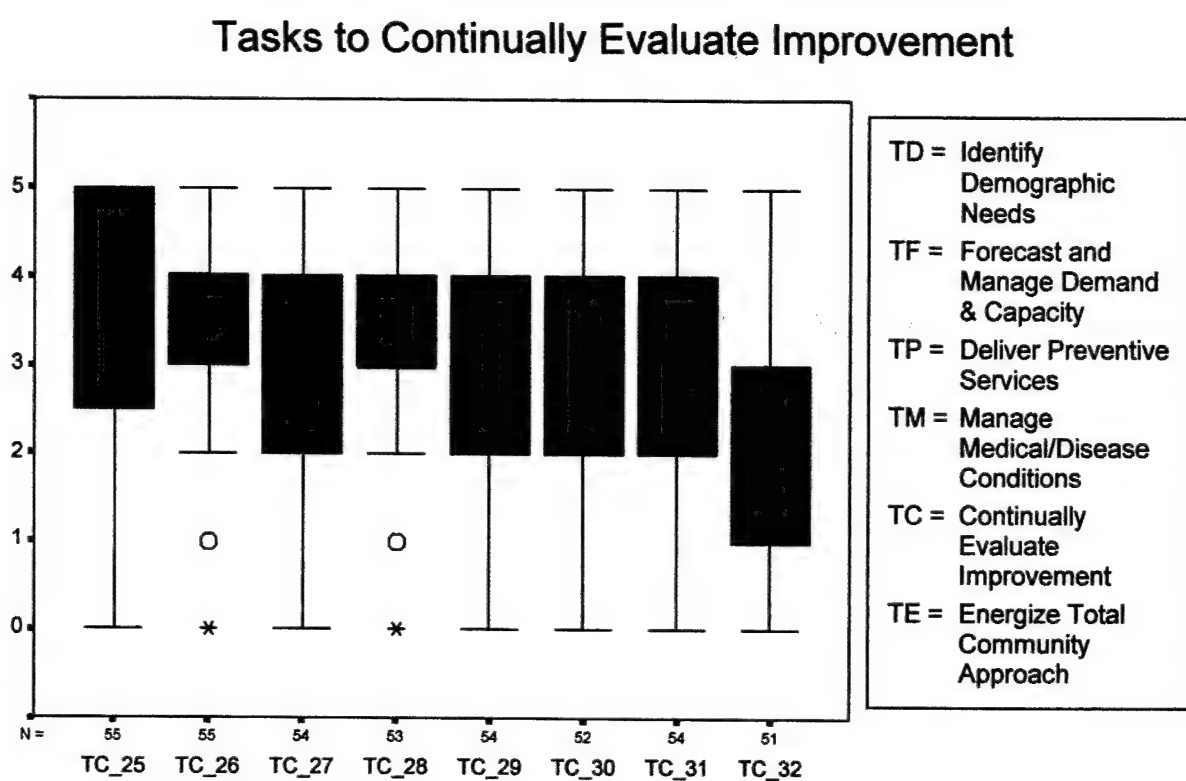


Figure 10 Box and whisker plot demonstrating how often individual tasks are performed to evaluate improvement in the population's health status and the delivery system's effectiveness/efficiency.

Of the tasks accomplished to continually evaluate improvement, item TC-25 and TC-26 were the two items with the highest median scores in this section. Both of these tasks deal with using information technologies to provide clinical outcome, either to individual provider teams, or concerning a condition management program. The median score for item TC-25 was 4 [interquartile range: 2 - 5], an a mean of 3.4. For item TC-26, the median value was 4 [interquartile range: 3 - 5], with a mean of 3.4. Most evident from this graph, however, is the extreme variability to responses in this section, with responses for each of the items in this category ranging from the absolute lowest score ("do not perform") to the absolute highest score ("perform very often").

*Energize a Total Community Approach to Population Health*

### Tasks to Energize a Total Community Approach to Population Health

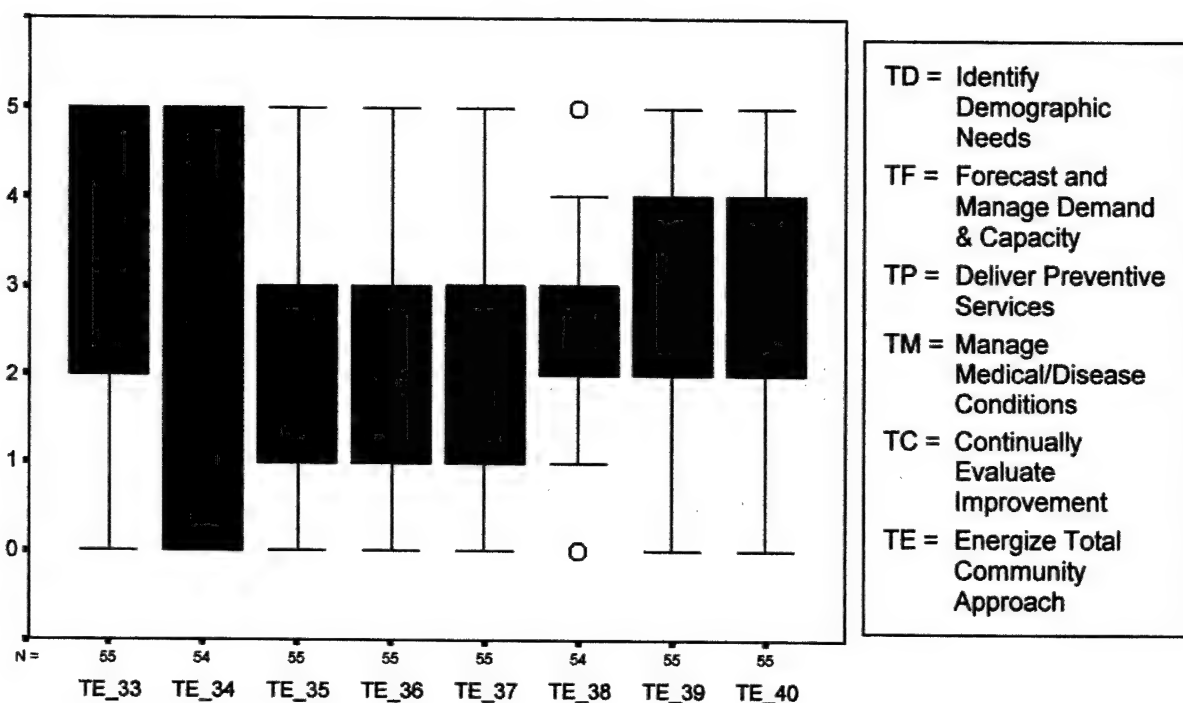


Figure 11 Box and whisker plot demonstrating how often individual tasks are performed to energize a total community approach to population health.

Of the tasks to energize a total community approach to population health, the two items that were rated the highest were items TE-33 and TE-34, although the responses to these were also the most variable. Both of these tasks address a medical inprocessing program for new beneficiaries. Item TE-33 asks about managing the program, and had a median score of 4 [interquartile range: 2 – 5], and a mean score of 3.5. Item TE-34 asks about conducting training during the inprocessing program, and

the median score was 4 [interquartile range: 0 – 5], and mean score of 2.8. Item TE-34 contains the most variability of all tasks, as evidenced by the interquartile range that encompasses the entire scale.

### *Additional Duties*

Because little data existed as to the additional duties most often performed by HCIs, respondents were asked to list the additional duties that took the most time, and then rate them using the same scale used to rate individual tasks. The survey asked for formal administrative duties, medical group programs managed by the HCI, medical group programs requiring representation by the HCI, and clinical duties. However, such a wide variety of responses were provided, that these were compiled into three larger categories: formal administrative duties, involvement in medical group programs, and clinical duties.

#### *Formal Administrative Duties*

Formal administrative duties were reported by 33 HCIs, the two most common duties were being a commander (or nurse manager), which was mentioned by 23.6% of respondents (n=13) and chief nurse duties, mentioned by 25.5% (n=14). Of the 13 individuals reporting having a commander or nurse manager role, one was a civilian, 9 were Majors, and 3 Lieutenant Colonels. Of the 14 individuals reporting chief nurse duties, 6 were Majors, and 8 were Lieutenant Colonels.

Seven of the individuals reporting formal administrative duties (13%) reported being both a commander (or nurse manager) and chief nurse, in addition to their HCI

duties. Patient Advocate (11.1%, n=6), Immunizations (7.4%, n=4), Readiness (3.7%, n=2) and other duties (31.5%, n=17) accounted for the remaining formal administrative duties. The mean response for all duties was scored greater than 3, or performed "fairly often." These figures can be seen in the box and whisker plot in Figure 12.

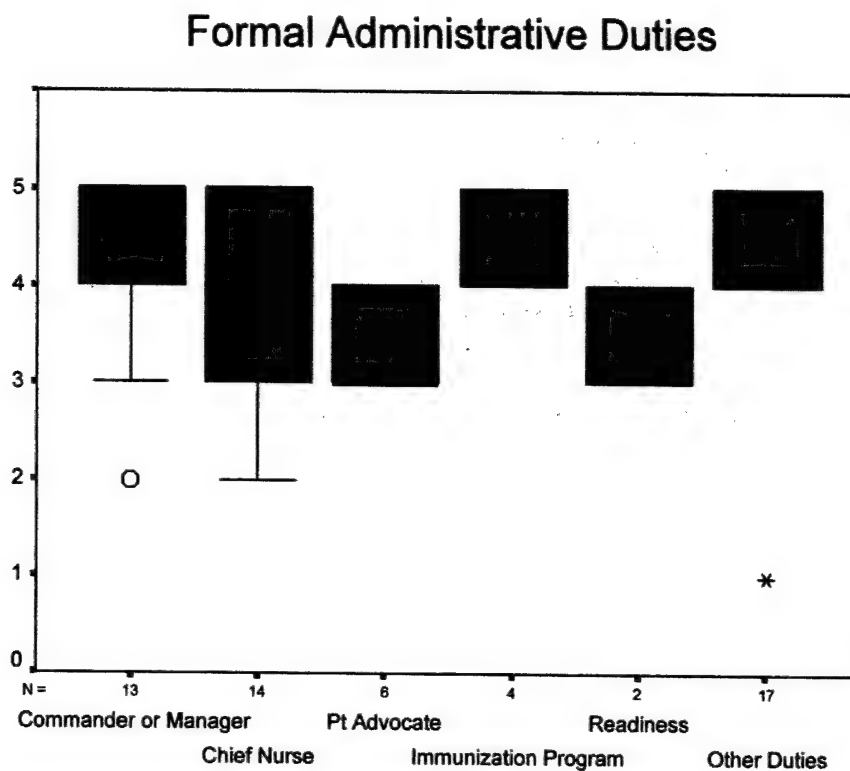


Figure 12 Box and whisker plot demonstrating formal administrative duties, and the amount of time the HCI spends on these programs

#### *Involvement in Medical Group Programs*

Involvement in medical group programs was reported by 44 respondents (81.8%). There were a wide variety of programs reported, and although the mean of time performing the duties were also scored at least a 3, or performed "fairly often", the

lowest quartile was consistently lower than the responses regarding the formal administrative duties. The responses to involvement in medical group programs can be seen in Figure 13.

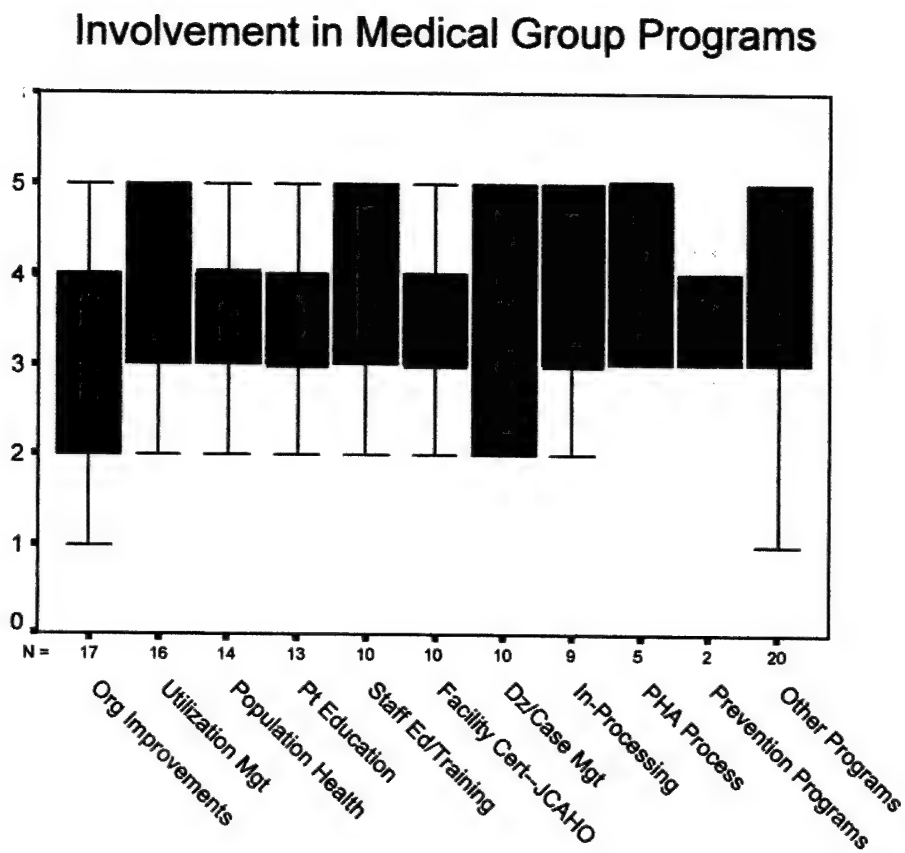


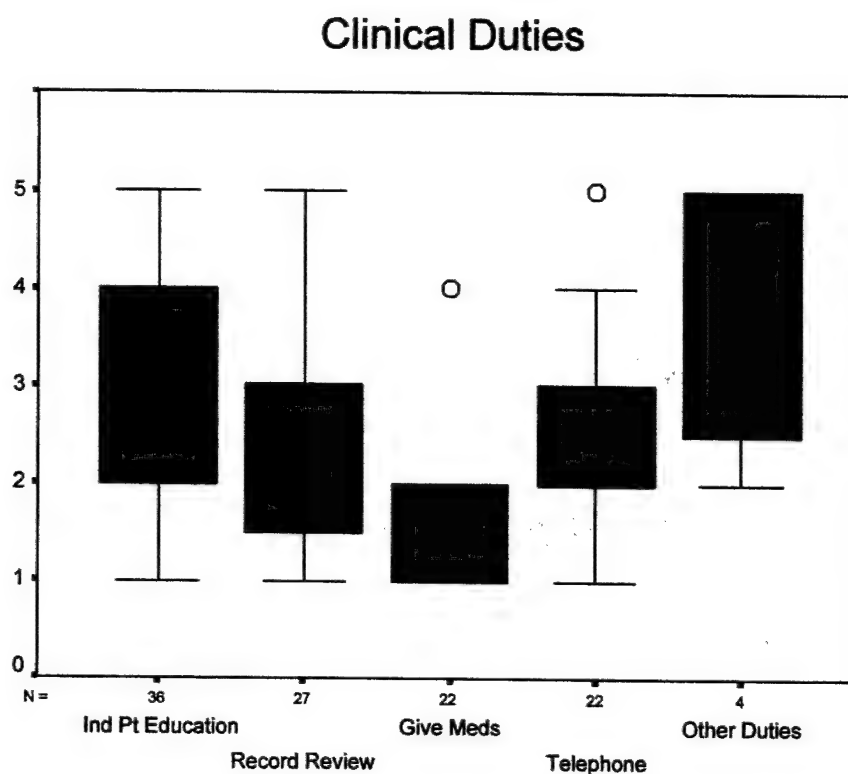
Figure 13 Box and whisker plot demonstrating involvement in medical group programs, and the amount of time the HCI spends on these programs

### *Clinical Duties*

Clinical duties were reported by 78% of respondents (n=43), although overall, the time spent performing these duties was much lower compared to formal administrative



functions and involvement in medical group programs. The responses to clinical duties can be seen in Figure 14.



*Figure 14* Box and whisker plot demonstrating involvement in clinical duties, and the amount of time the HCI spends on these programs.

### ***Responses to Open-ended Survey Questions***

Another major section of the HCI Questionnaire contained five open-ended questions. These questions sought to elicit the concerns and successes of the individual HCIs, as well as to identify any further issues that might need further investigation. Although there were five original questions, the themes identified through the

responses can be grouped into three separate categories: accomplishments, concerns and barriers, and support. Each of these areas is discussed below.

### *Accomplishments*

Of the surveys returned, 89% (n=49) of the respondents answered this question, which was often the most detailed and comprehensive of all the answers to the open-ended questions; the pride and enthusiasm expressed in the answers was nearly contagious! The major accomplishment mentioned by 51% (n=25) of those that answered this question was the impact they have had in the efficiency of the Primary Care Management teams, including patient's access to appointments, nurse and provider productivity, and identifying trends with potential solutions.

Another accomplishment identified by 38% (n=18) of the respondents was the increased use of clinical preventive services within their population. One respondent wrote, "I'm most proud of our mammogram initiative...we found 5 cancers the first year we implemented this and plan to continue the initiative." Other accomplishments mentioned include the HCI's part in the support and development of Primary Care Optimization (22%, n=11), implementing Clinical Practice Guidelines or disease management programs (22%, n=11), and implementing or improving a medical record review of newly arrived beneficiaries (20%, n=10).

### *Concerns and Barriers*

All but one respondent (98%) expressed a concern about the HCI role, or a barrier they have encountered. The concern voiced by 54% (n=29) of those that answered the question was the additional duties assigned outside of the HCI role. One

respondent stated approximately 75%-80% of his or her time was spent accomplishing other duties away from the HCI role; another reported spending 50% of time in a different role. One individual reported being “queen of ‘other duties as assigned’”, and others wrote of spending months as a clinical nurse due to a shortage of nurses.

The second concern or barrier reported by 48% (n=26) of individuals answering the question was that others within their facility did not fully understand the HCI role. Many mentioned they felt the leadership within their facility was not aware of what HCI role could provide, others spoke of mistrust from members of the Primary Care teams.

Another concern mentioned by 19% (n=10) of those answering the question reported concern about the location the HCI position fit in the organizational structure. One individual reported that it took nearly four months for the facility to decide to whom he or she would report, others mentioned a lack of influence when reporting to a Flight Commander rather than the Director of Medical Service.

### *Support*

87% (n=48) of respondents provided information about what support they had received in the HCI role. Of those that answered the question, 35% (n=17) lauded the data provided by the Population Health Support Division. The Health Care Integrator course was another benefit mentioned by 21% (n=10). Support from leadership was also identified (19%, n=9), as well as networking with other HCIs (13%, n=6), and the Population Health Informatics course (11%, n=5).

## V. DISCUSSION AND SUMMARY

Research has shown the benefit of positions using case management, disease management, evidence-based practice, and population-based care, such as the HCI role. These benefits have begun to emerge for the HCI role, as the individual HCI reports the impact they have had on population health metrics, patient care and efficiencies within the clinics.

The original question addressed by this study was "to what extent has the HCI role been implemented across the Air Force?" Using the definition of implementation suggested at the beginning of this study, it appears that in general, all of the tasks are being performed by HCIs in some capacity. In fact, none of the tasks specifically included in the official job description had a mean response of less than 2.0 (performed less than one hour per month). The mean response of how well the HCI's felt the role had been implemented in their own facility was 3.5, with a majority feeling it had been implemented fairly well, or better. This can be seen in Figure 15.

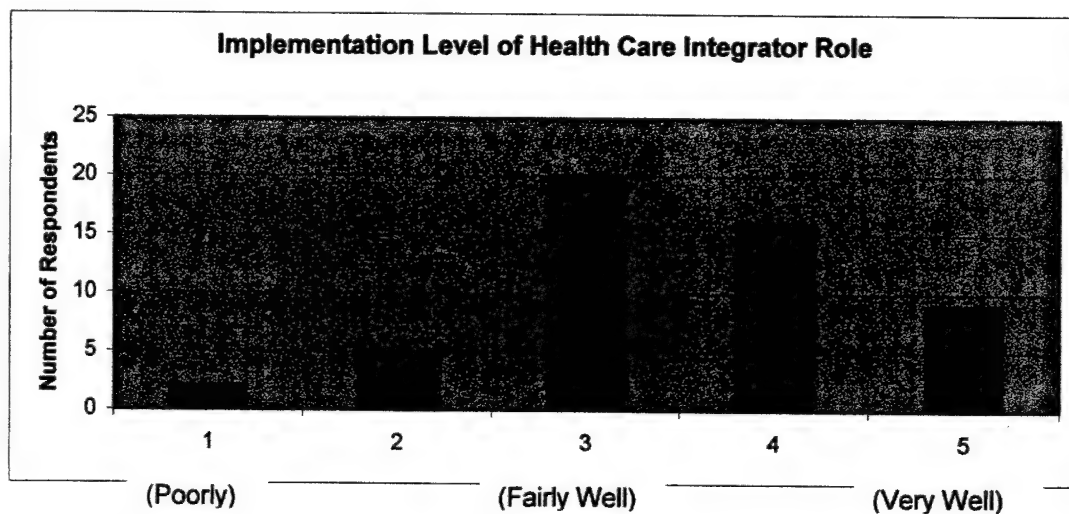


Figure 15 Implementation Level of Health Care Integrator role

The subquestions posed at the beginning of this study included the facilitators and barriers to implementing the HCI role, the tasks performed least often, and the additional duties that are performed by HCIs. Each of these is discussed in more detail, below.

### ***Facilitators and Barriers***

The two most often mentioned facilitators of the HCI role were the population health data provided by the Population Health Support Division, and the Health Care Integrator course. These two elements are provided by the AFMS, and have been developed specifically to support the HCI role, so it is not surprising that these programs would be valuable to the individual HCI. Support from the leadership at the facility was also identified as an important support for the HCI role. Each of these identified facilitators are consistent with existing research, which has shown that organizational support is important for role implementation (Goodman, McLeroy, Steckler & Hoyle, 1993; Page & Arena, 1991; and Russell & Hezel, 1994).

Additional duties and a lack of support or resistance within an organization were the two most commonly identified barriers to implementing the HCI role, the very same observations that lead to the development of this study. Additional duties were a barrier identified by Page and Arena (1991), and were characterized as a lack of support from the organization. It appears that although the AFMS and individual MTFs have been facilitators of the HCI role, the lack of organizational support from individual MTFs has also been a barrier.

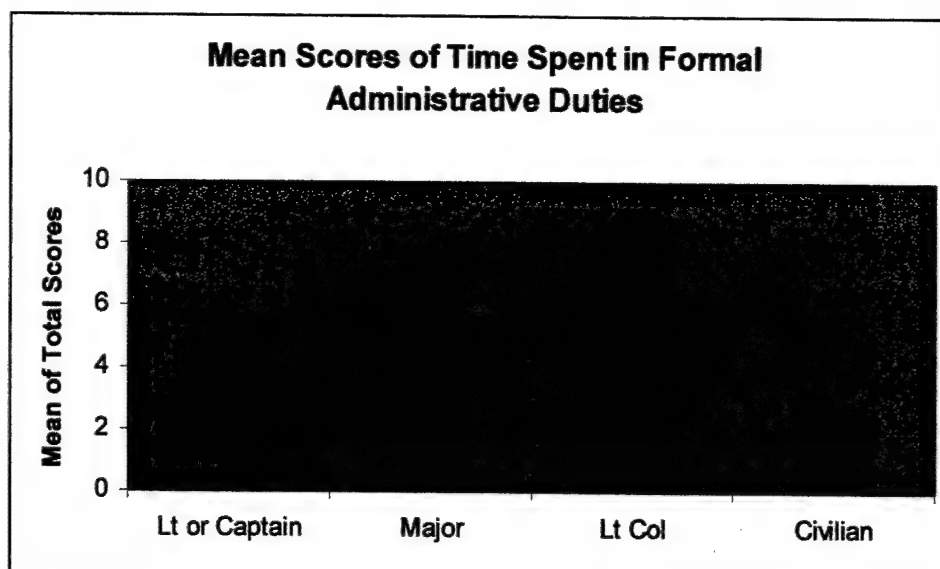
### ***Tasks Performed Least Often***

Of all the subquestions posed at the beginning of this study, this one was the least meaningful, once the data had been collected. The most striking result, however, was actually the distribution of time spent on the individual tasks. In fact, of the 40 tasks included on the survey, only six (15%) did not contain responses that ranged from the lowest to the highest value. In other words, of the 85% the tasks in this survey, each are performed very often by some HCIs, and not at all by other HCIs.

This suggests that although nearly all of the tasks are being performed, and individual HCIs report the role being fairly well implemented in their own facility, the tasks are being performed at varying degrees across the Air Force. Interestingly, this broad scope of practice is the same result that studies of clinical nurse specialists and nurse practitioners have found in similar descriptive studies (Hravnak, Rosenweig & Baldisseri, 1996; Kinny, Hawkins & Hudman, 1997; Scott, 1999; and van Soeren & Micevski, 2001).

### ***Additional Duties***

Additional duties also varied widely, although formal administrative functions were scored highest of all types of additional duties. In fact, when the scores of all formal administrative functions were combined, 49% of participants (n=27) reported spending more than 10 hours per month on a formal administrative function. When the mean responses were compared by rank, it was evident the higher the rank, the more time spent in these additional duties. This can be seen in Figure 16, below.



*Figure 16* The mean of the total score of time spend in formal administrative duties, compared by rank.

Time spent accomplishing clinical duties and involvement in medical group programs remained constant, regardless of the rank.

Although the elements of the HCI role have shown to improve healthcare delivery, and a majority of the respondents felt the HCI role was well implemented in their facility, the job description is extremely broad, and contains numerous tasks and responsibilities that would be difficult to accomplish by any one individual. As one respondent wrote, "I wish I could do it all." Compounding the issue are the numerous additional duties, especially for those in the higher ranks. One individual commented that being a chief nurse and an HCI was a "double-edged sword," as it was easy to get buy-in, but difficult to balance the time requirements of both positions.

### ***Implications for Nursing***

Coordination within a healthcare system, as called for by the Institute of Medicine (2001), is a tremendously important element for all medical systems. The Air Force's attempt to develop a unique role provides a possible approach to accomplish this through the use of an expanded nursing role. With this descriptive study, nurse leaders can also observe the barriers and facilitators experienced in implementing the HCI role to ensure a similar role is implemented even more smoothly.

### ***Recommendations***

Although the AFMS has done an excellent job of creating and supporting the individual HCIs, it appears that many HCIs do not feel their leadership truly understands the importance of the position, or what benefit they provide. It may be worthwhile to include a discussion of the HCI role for new commanders in the MTFs, as well as in other training programs that train newly arriving medical personnel. Additionally, if additional duties were assigned to those in an HCI position, it would also be important for the leadership at the MTF level to recognize the need for additional manpower or support. As the successes and rewards of the HCI position are realized, value will be placed on the time the HCIs have to accomplish the role.

Further research into the HCI role would be valuable—especially linking the outcome of the HCI efforts to the amount of time they have to accomplish their job. This might provide even more support for the need to avoid additional duties or assign additional support. If this role were translated to a civilian healthcare system, it would also be beneficial to see if similar results are realized.



Balancing the increasing chronic diseases and the rapid development of science and technology is a difficult task, one that nursing and medicine have not successfully accomplished. The HCI role is a valiant effort to address these issues in the Air Force Medical Service, and once it has been fully implemented, can truly have its intended result.

## Appendix A

### AUTHORIZATIONS



The University of Texas  
Health Science Center at San Antonio  
Mail Code 7830  
7703 Floyd Curl Drive  
San Antonio, Texas 78229-3900

**Institutional Review Board**  
IORG0000312  
Multiple Assurance #M-1403  
Registration #IRB00000553

(210) 567-2351  
FAX: (210) 567-2360

November 27, 2002

Jennifer J. Hatzfeld, MEd., RN  
Department of Acute Nursing  
UTHSCSA

Dear Ms. Hatzfeld:

Re: IRB Protocol # **E-023-035** A Descriptive Study of the Health Care Integrator Role in the United States Air Force. (UTHSCSA, Department of the Air Force)

Reference your request, received, November 22, 2002.

This protocol was determined **EXEMPT** on November 22, 2002, under DHHS Regulation 46.101(b)(2): Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please provide a Copy of Department of the Air Force's approval for the record.

**RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR:**


- (1) submit for review and approval by the IRB all modifications to the protocol or consent forms(s) prior to the implementation of the change;
- (2) *protect the confidentiality of all personally identifiable information collected and train your staff and collaborators on policies and procedures for ensuring confidentiality of this information;*
- (3) for funded projects, submit a copy of renewals/continuations and advise whether the study of specimens, records, or human subjects has changed from the original submission; and
- (4) submit a **Status Report** for continuing review by the IRB. A form will be sent to you annually to ascertain the status of the activity.












**Source of Funding:** Student Funded

**NEXT IRB REVIEW:** NOVEMBER 2003

*Note: Check with each study site about any additional committee approvals required for implementation of this study (for example: for VA sites, the R&D committee of the South Texas Veterans Health Care System and for University Health System sites, their system's Research Committee.)*

  
Wayne P. Pearson, Ph.D., Director, IRB

 WebMail - RE: for survey approval

 Delete
  File
  Create
  Reply
  Reply All
  Forward
  Previous
  Next
  Options
  Index
  Help

**Date Sent:** Monday, November 25, 2002 4:27 PM  
**From:** Hamilton Charles H Civ AFPC/DPSAS  
 <Charles.Hamilton@RANDOLPH.AF.MIL>  
**To:** Jennifer Hatzfeld  
**Subject:** RE: for survey approval  
☐ Urgent ☐ New

**Capt Hatzfeld**  
 Your HCI Questionnaire is approved and assigned a survey control number of USAF SCN 02-117. This control number will expire on 31 May 03. I just have one recommended change in the demographic question, "Whom do you report to?" Please change to read, "To whom do you report?" Thanks. We wish you success in your academic endeavors.

**Charlie Hamilton**  
 Chief, AF Personnel Survey Branch  
 565-2448  
 —Original Message—  
**From:** Jennifer Hatzfeld [mailto:hatzfeld@uthscsa.edu]  
**Sent:** Thursday, November 21, 2002 3:00 PM  
**To:** charles.hamilton@afpc.randolph.af.mil  
**Subject:** for survey approval

Attached is the request for survey approval, as well as the other supporting documents. I included the approval request from the Institutional Review Board at the University of Texas Health Science Center at San Antonio, which is in the process of being reviewed. For graduation purposes, I need to complete the data collection and analysis by April, so I am requesting approval from both the Air Force and the University simultaneously. Although I did not include the full thesis proposal, I would be happy to send that if necessary.

Please contact me if there are any questions or concerns.

V/R  
 -Capt Jennifer Hatzfeld

Jennifer J. Hatzfeld, Capt, USAF, NC  
 AFIT Student  
 University of Texas Health Science Center  
 at San Antonio  
 (210)520-0181

## Appendix B

DEPARTMENT OF THE AIR FORCE  
XX MDG  
XXXXXXXXX AFB

XXXX Group  
Date

## JOB DESCRIPTION

**JOB TITLE:** Health Care Integration

**1. SPECIALTY DATA:**

**1.1. AFSC:** 46XX (Nurse Corps)

**1.2. GRADE SPREAD:** Major through Lieutenant Colonel

**JOB SUMMARY:** Builds healthy people, communities, and a fit and ready force by utilizing population-based health principles. Leads the Military Treatment Facility (MTF) in program development that integrates all aspects of care along the health continuum. Establishes links with utilization managers, case managers, and discharge planners, including contractors, to provide all aspects of services for patients who experience barriers to appropriate care. Develops educational programs for staff on integrated health care processes and data management. Works with Group Practice Manager (GPM) to develop and monitor metrics and other tools to evaluate and continuously improve the efficiency and effectiveness of health delivery systems. Communicates and collaborates with the Primary Care Manager (PCM), the PCM team, Executive Staff, GPM, and other members of the health care team. Utilizes and integrates the critical success factors for effective population health:

1. Describe the Demographic needs and health status of the population
  - Assesses the health care needs of a defined population using standardized assessment tools.
  - Collaborates with public health officer on surveillance measures as decision support for future program initiatives.
2. Forecast and manage demand and capacity.
  - Works closely with the Group Practice Manager (GPM) to analyze demand-forecasting information.
  - Actively participates in Military Treatment Facility (MTF) level decision-making on whether to use the direct care system or the Managed Care Support Contractor (MCSC) network to meet required demand.
  - Identifies gaps between forecasted needs and medical service capability and ensures initiatives are in place to fill the need when necessary such as triage or other demand management activities.

3. Proactively deliver preventive services to the enrolled population
  - Coordinates PCM team's proactive delivery of secondary preventive services per evidence-based protocols.
  - Utilizes data to provide information to clinic level
  - Reviews clinical preventive services for comprehensiveness to achieve a healthy population and a fit and ready force.
4. Manage medical and disease conditions
  - Works closely with the Director of Medical Services (SGH) to promote the use of evidence-based clinical practice guidelines and pathways to reduce variation in the management of medical conditions.
  - Advocates all levels of clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum.
  - Works in tandem with the GPM, and other members of leadership, to maximize resources allocated by assisting with the deployment of best clinical and business practices to increase direct care capacity and to improve the quality of care
5. Continually evaluates improvement in the population's health status and the delivery system's effectiveness/efficiency.
  - Engages information technologies to provide clinical outcome information at the micro level to assist provider teams in developing and improving patient specific care plans and at the macro level to improve entire condition management programs as indicated.
  - Engages both the direct and indirect delivery systems when problems are trended.
  - Assists in the collection of standardized clinical metrics when they are not provided by central collection.
  - Analyzes PCM and MTF level measures developed.
  - Manipulates data, when possible, to produce PCM and MTF level measures designed to evaluate both effectiveness of interventions and effectiveness of the system wide implementation of evidenced-based practice.
  - Uses analysis to support the identification and prioritization of clinical areas/PCM teams requiring improvement and to identify best practices.
6. Energize a total community approach to population health
  - Advises and collaborates with base level Integrated Delivery System (IDS), Health and Wellness Center, or other agencies whose purpose is to develop and implement a plan to respond to community needs.
  - Utilizes community agencies and resources as appropriate

- Coordinates MTF and community efforts to reduce ineffective consumption of health care and increase usage of health promoting services
- Supports programs directed at reducing, or where possible, eliminating environmental conditions and lifestyle behaviors contributing to morbidity.

**2.1. Job Knowledge:** Uses available tools to assess the defined population's health and health care needs. Maintains current knowledge of clinical operations in the direct care system. Understands personnel and supply resource allocation procedures. Maintains current knowledge of all aspects of disease and condition management focusing on incorporating primary, secondary, and tertiary prevention strategies and protocols. Coordinates demand management processes into total population health plan. Possesses knowledge of community assets and health plan for defined location. Maintains familiarity of TRICARE benefits and indirect care capabilities in local network area. Possesses ability to manipulate data using software applications to produce micro and macro level reports. Utilizes the operational medical group management structure as basis for communication up and down the chain of command. Conducts briefings to all stakeholders on collected information to assist in executive decision-making. Understands standardized metrics, to include those that are part of accreditation, i.e. HEDIS. Analyzes metric results, instructs others and determines accuracy of data. Maintains currency regarding Air Force Medical System policies and population health improvement plan. Possesses knowledge of current operational instruction and updates them to ensure compliance with accreditation, quality assurance, local state laws, legal and other regulatory requirements.

**2.1. Education and Training:** Baccalaureate of Science in Nursing degree from accredited educational institution is required. An advanced degree in a health care discipline is highly desirable, especially community health. National certification in related field (e.g. community health or occupational health, etc.) is recommended. Strong background in prevention, health promotion, epidemiology, informatics is highly desirable.

**2.2. Experience:** Broad clinical background is required with at least five years in progressively responsible positions in acute care and outpatient settings. Experience in personnel management, quality assessment/improvement, case management, discharge planning and utilization management experience preferred. Comprehension of essential information systems such as the Composite Health Care System (CHCS), and Automated Data Module (ADM) is necessary. Familiarity with Excel, Power Point, and Access is desirable.

### **3. PERFORMANCE EXPECTATIONS:**

### **3.1 Job Knowledge:**

- 3.1.1. Completes and updates population assessment using standardized tools and other base specific data to determine population's health and health care needs.
- 3.1.2 Acts as consultant in decision-making regarding revision or design of health care services, utilization of personnel, and investment level equipment purchases within the MTF.
- 3.1.3 Compiles information regarding primary care clinical needs and preventive services to support demand-forecasting processes.
- 3.1.4 Coordinates demand management processes, such as nurse triage, patient education, extender protocols into total population health plan.
- 3.1.5 Incorporates current knowledge of all aspects of disease and condition management to include evidence-based primary, secondary, and tertiary prevention protocols into program assessment, design or reengineering.
- 3.1.6 Works with TRICARE Service Center to maintain accurate knowledge of TRICARE benefits and indirect care capabilities in local network area.
- 3.1.7 Possesses ability to manipulate data using software applications to produce micro and macro level reports.
- 3.1.8 Briefs stakeholders to include executive leadership.
- 3.1.9 Analyzes standardized metrics, instructs on metric definitions, and determines accuracy of data.
- 3.1.10 Ensures MTF population health plan and initiatives support and do not conflict with Air Force Medical System policies, population health improvement plan, current operational instructions, accreditation requirements, quality assurance, local and state laws, legal and other regulatory requirements.
- 3.1.11 Evaluates progress of population health initiatives through trending of metric results such as clinical metrics, i.e. HEDIS.
- 3.1.12 Oversees tracking of patient referrals to private sector care to ensure continuity of care and administrative relevance and rationality.

### **3.2. Leadership Skills:**



- 3.2.1 Focuses facility program owners in developing/monitoring program goals and objectives consistent with MTF's population health plan.
- 3.2.2 Participates in planning, developing, and evaluating population health programs and initiatives in collaboration with PCM, all services, Health and Wellness Center (HAWC), TRICARE Service Center and community agencies.
- 3.2.3 Assists in the collaborative development and maintenance of clinical guidelines that describe and predict the plan of treatment for a specific patient population.
- 3.2.4 Develops interdisciplinary management style through effective communication and collaboration with appropriate departments.
- 3.2.5 Collaborates with hospital personnel and civilian agencies, as required, on matters relating to population health.
- 3.2.6 Attends medical staff meetings (Pro Staff) and uses other appropriate forums to establish and maintain effective working relationship with providers.

### **3.3. Professional Qualities:**

- 3.3.1. Participates in professional development activities and maintains professional affiliations. Attends conferences and workshops related to duties.
- 3.3.2 Maintains current knowledge of the process of disease management, current trends in prevention, and epidemiological-based research.
- 3.3.3 Broadens knowledge base of data management techniques, computer based education programs, and other technological advances that would improve efficiencies in patient care delivery processes.

### **3.4. Organizational Skills:**

- 3.4.1. Assists with staff development programs to support deployment of prevention/disease management.
- 3.4.2 Conveys information in a fashion that promotes decision-making for PCM teams and executive leadership.
- 3.4.3 Provides clinical outcome data and demographics of enrolled population in usable format for PCM teams.
- 3.4.4 Assists with setting priorities for improving health of a defined population.

- 3.4.5 Ensures that tools tracking population health data are utilized correctly and efficiently.
- 3.4.6 Promotes capacity management activities by improving processes that increase the PCM team's ability to care for their populations.

**3.5. Judgment and Decisions:**

- 3.5.1. Facilitates education and counseling for patients on potential risks for disease or injuries. Makes appropriate recommendations/referrals.
- 3.5.2. Accesses information systems to analyze, track, and quantify program effectiveness. Identifies problems with data collection systems as they become apparent.
- 3.5.3. Promotes decision-support tools for guiding population based case management activities.
- 3.5.4. Supports internal and external customer service by promoting a customer friendly environment.
- 3.5.5. Tracks patient complaints with indirect health services and intervenes when necessary to promote continuity of care across the continuum.
- 3.5.6. Uses chain of command to focus attention on best practices and problem areas.

**3.6. Communication Skills:**

- 3.6.1 Communicates and collaborates with the PCMs and appropriate members of the health care team in the direct and indirect care system to ensure needs of enrolled patients are met.
- 3.6.2 Serves as a working member of the Population Health Working Group (PHWG).
- 3.6.3 Establishes liaisons with inpatient/outpatient case managers/discharge planners to coordinate services throughout the continuum of care to break down barriers to appropriate care.

**Note.** From Health Care Integrator Job Description, Air Force Medical Service, 2002.

Retrieved August 23, 2002 from [https://afms.mil/hci/HCI\\_Final\\_Draft\\_ID.doc](https://afms.mil/hci/HCI_Final_Draft_ID.doc)

## Appendix C

**Health Care Integrator Questionnaire**

The Health Care Integrator (HCI) position has a wide variety of tasks and responsibilities. To complete my masters in Administration of Community and Health Care Systems in Nursing, I have designed a descriptive study to learn more about the HCI role. Your responses will provide a valuable insight to describe the HCI position as it currently exists, and further define the role.

This questionnaire asks for demographic data, information about your Military Treatment Facility (MTF), what you actually do, and a few open-ended questions about the HCI role. As you complete the survey, keep in mind that there are no right or wrong answers—it is most important to just honestly respond to each question. We want to know what is happening now—not what it should be, or could be if you had more time!

Participation in this study is strictly voluntary, and your participation will not affect your employment or your performance reports. All responses will be kept confidential, and the information you provide will not be connected with your name or your location; all data collected will be reported as group data. **Completion of this questionnaire indicates your consent to participate in this study.**

Please answer the following questions to the best of your ability. You may return the survey by e-mail, or you can request a stamped envelope, if you would prefer to sent your responses via the postal service. If you have any additional questions or concerns about this study, contact Jennifer Hatzfeld at [hatzfeld@uthscsa.edu](mailto:hatzfeld@uthscsa.edu) or (210)520-0181; or Dr. Mickey Parsons at [parsonsm@uthscsa.edu](mailto:parsonsm@uthscsa.edu) or (210)567-0059. You may also contact the UTHSCSA Institutional Review Board at 210-567-2351.

How many total years/months have you been an HCI?

\_\_\_\_ years      \_\_\_\_ months

How long have you been in your current HCI position?

\_\_\_\_ years      \_\_\_\_ months

What is your rank?

\_\_\_\_ O-5  
\_\_\_\_ O-4  
\_\_\_\_ O-3  
\_\_\_\_ other: \_\_\_\_\_

What is your Gender?

\_\_\_\_ M      \_\_\_\_ F

**Survey continues on the next page**

What is the highest level of formal education you have received?

- ☐ BSN
- ☐ MSN
- ☐ non-nursing master's degree
- ☐ other: \_\_\_\_\_

What training have you received to function as an HCI? (mark all that apply)

- ☐ completed HCI course at Sheppard AFB
- ☐ on the job training with a previous HCI
- ☐ case management experience (\_\_\_\_ years)
- ☐ community health experience (\_\_\_\_ years)
- ☐ population health experience (\_\_\_\_ years)
- ☐ AFIT Community Health program
- ☐ other describe: \_\_\_\_\_

To whom do you report?

- ☐ Director of Medical Services (SGH)
- ☐ A squadron commander
- ☐ A flight commander
- ☐ A nurse manager
- ☐ Other (please list \_\_\_\_\_)

How many positions are between yourself and the MTF Commander in your organizational chart (do not count yourself or the MTF Commander)

\_\_\_\_\_ positions

How many Tricare PRIME beneficiaries (including active duty) are enrolled to your MTF?

\_\_\_\_\_ beneficiaries

Of the total number enrolled to your MTF, how many Tricare PRIME beneficiaries (including active duty) are within your population as an HCI?

\_\_\_\_\_ beneficiaries

**Survey continues on the next page**

Where is your facility located?

- ☐ within the Continental United States, 50 miles or less from a major medical center (a facility that offers major surgeries, trauma care, and rehabilitation)
- ☐ within the Continental United States, more than 50 miles from a major medical center (a facility that offers major surgeries, trauma care, and rehabilitation)
- ☐ outside the Continental United States (what country? \_\_\_\_\_)

Operational tempo (also called the "ops tempo") can be defined as additional military responsibilities that are required to be accomplished, above and beyond the usual mission. This can often be seen in the number of personnel deployed and/or the number of troops assigned to your base. Using this definition, how would you rate the operational tempo at your MTF?

- ☐ Very low (no clinical staff deployed, no additional troops)
- ☐ Fairly low (up to 10% of clinical staff deployed, and/or additional troops are as many as 10% of your total beneficiaries)
- ☐ Medium (up to 20% of clinical staff deployed, and/or additional troops are as many as 20% of your total beneficiaries)
- ☐ Fairly high (up to 30% of clinical staff deployed, and/or additional troops are as many as 30% of your total beneficiaries)
- ☐ Very High (over 30% of clinical staff deployed, and/or additional troops are more than 30% of your total beneficiaries)

Staffing levels can be defined as actually having the number of personnel that are authorized by a manning document. Using this definition, how would you rate the staffing levels of the Primary Care Management (PCM) teams at your MTF?

- ☐ Very low (less than 70% of positions are filled)
- ☐ Fairly low (more than 70%, but less than 80%, of positions are filled)
- ☐ Medium (more than 80%, but less than 90%, of positions are filled)
- ☐ Fairly high (more than 90%, but less than 100%, of positions are filled)
- ☐ Very high (all authorized positions are filled)

**Survey continues on the next page**

## Task Inventory

Please indicate how often you perform the following tasks in your duties as the HCI, using the scale below.

0 – do not perform

1 – Rarely perform  
(complete this task less than 1 hour per month)

2 – Not often performed  
(complete this task 1 to 2 hours per month)

3 – Performed fairly often  
(complete this task 3 to 4 hours per month)

4 – Performed quite often  
(complete this task 5 to 10 hours per month)

5 – Performed very often  
(complete this task more than 10 hours per month)

	0	1	2	3	4	5
	Do not perform	Rarely	Not often	Fairly often	Quite often	Very often
<b>Describe the demographic needs and health status of the population</b>						
Assess the health care needs of your population by using population health data sets (the CD-ROM produced by PHSO)						
Assess the health care needs of your population by talking with individual patients						
Assess the health care needs of your population by facilitating the review of medical records of incoming patients						
Assess the health care needs of your population using Health Enrollment and Assessment Report (HEAR) surveys						
Assess the health care needs of your population using reports from Health Care Information Line						

**Survey continues on the next page**

	0	1	2	3	4	5
	Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo
Assess the health care needs of your population using another systematic process (such as collecting additional data, conducting focus groups, etc.)						
Collaborate with the public health office on surveillance measures to support future program initiatives						
<b>Forecast and manage demand and capacity</b>						
Work with the Group Practice Manager (GPM) to analyze demand-forecasting information						
Participate in Military Treatment Facility (MTF) level decision-making on whether to use the direct care system or the Managed Care Support Contractor (MCSC) network to meet required demand						
Identify gaps between forecasted needs and medical service capability						
Ensure initiatives are in place to address identified gaps in the provision of healthcare (such as triage or other demand management activities)						
Support coding audits to evaluate coding practices by providers at your base						
Conduct coding audits to evaluate coding practices by providers at your base						
<b>Proactively deliver preventive services to the enrolled population</b>						
Coordinate proactive delivery of immunizations						
Coordinate proactive delivery of secondary preventive services (such as pap smears, or testicular exams) per evidence-based protocols						

**Survey continues on the next page**

	0	1	2	3	4	5
	Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo
Interpret data to provide information to individual PCM teams or clinics						
Review clinical preventive services provided to your population for comprehensiveness						
<b>Manage medical and disease conditions</b>						
Promote the use of evidence-based clinical practice guidelines and pathways						
Adapt clinical practice guidelines and pathways for use at your MTF						
Provide input into the adaptation of clinical practice guidelines and pathways for use at your MTF						
Advocate clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum						
Facilitate clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum						
Perform clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum						
Maximize resources allocated by assisting with the deployment of best clinical and business practices						
<b>Continually evaluates improvement in the population's health status and the delivery system's effectiveness/efficiency</b>						
Engage information technologies to provide clinical outcome information to assist individual provider teams in developing and improving patient specific care plans						

Survey continues on the next page



	0	1	2	3	4	5
	Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo
Engage information technologies to provide clinical outcome information to improve entire condition management programs						
Engage both the direct and indirect delivery systems when problems are trended						
Assist in the collection of standardized clinical metrics when they are not provided by central collection						
Analyze PCM and MTF level measures developed						
Produce PCM and MTF level measures designed to evaluate both effectiveness of interventions and effectiveness of the system wide implementation of evidenced-based practice						
Use analysis to support the identification and prioritization of clinical areas/PCM teams requiring improvement						
Use analysis to identify best practices among clinical areas/PCM teams						
<b>Energize a total community approach to population health</b>						
Manage a medical inprocessing program for beneficiaries arriving at your base						
Conduct briefings at a medical inprocessing program for beneficiaries arriving at your base						
Provide advice to the base level Integrated Delivery System (IDS), Health and Wellness Center, or other agencies whose purpose is to develop and implement a plan to respond to community needs						

Survey continues on the next page

	0	1	2	3	4	5
	Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo
Collaborate with base level Integrated Delivery System (IDS), Health and Wellness Center, or other agencies whose purpose is to develop and implement a plan to respond to community needs						
Utilize community agencies and resources						
Coordinate MTF and community efforts to reduce ineffective consumption of health care						
Coordinate MTF and community efforts to increase usage of health promoting services						
Support programs directed at reducing or eliminating environmental conditions and lifestyle behaviors contributing to morbidity.						
<b>Additional Duties</b>						
Formal Administrative Function (such as nurse manager, flight commander, operations officer, etc.).  Please list the two functions that take the most amount of time (if any), and rate how often these duties are performed						
_____						
_____						

Survey continues on the next page

0	1	2	3	4	5
Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo

**Program Manager for MTF-Wide Program**

(such as infection control, patient education, utilization management, etc.)

Please list the three programs that take the most amount of time (if any), and rate how often these duties are performed

_____						
_____						
_____						

**Representative for MTF-Wide Program**

(such as infection control, patient education, utilization management, etc.).

Please list the five programs that take the most amount of time (if any), and rate how often these duties are performed

_____						
_____						
_____						
_____						
_____						
_____	0	1	2	3	4	5

**Survey continues on the next page**

	Do not perform	Rarely <1°/mo	Not often 1-2°/mo	Fairly often 3-4°/mo	Quite often 5-10°/mo	Very often >10°/mo
<b>Clinical Nursing Functions:</b>						
Telephone nursing practice						
Administer medications						
Patient education						
Record review for medical clearance						
Other: _____						
Other: _____						

Using the following scale, how well has the HCI role been implemented at your facility overall?

1                      2                      3                      4                      5  
 (Poorly)                      (Fairly Well)                      (Very Well)

**Survey continues on the next page**

What are your thoughts about the HCI role at your MTF?

What are some accomplishments you have achieved as an HCI that you are most proud of?

What kind of support have you received from the Air Force Medical Service (AFMS) and/or MTF that have been helpful for you in the HCI role?

What barriers have you encountered in your role as HCI?

What other issues do you think are important about the HCI role that have not been addressed in this survey?

**This completes the survey.  
Thank-you!**

## Appendix D

## Mean and Median Scores of Tasks Accomplished by Health Care Integrators

ITEM #	TASK	MEAN	MEDIAN	PERCENTILES		
				25	50	75
Describe the demographic needs and health status of the population						
TD-1	Assess the health care needs of your population by using population health data sets (the CD-ROM produced by PHSO)	4.2	4	4	4	5
TD-2	Assess the health care needs of your population by talking with individual patients	2.1	2	1	2	3
TD-3	Assess the health care needs of your population by facilitating the review of medical records of incoming patients	3.1	3	2	3	4
TD-4	Assess the health care needs of your population using Health Enrollment and Assessment Report (HEAR) surveys	1.8	2	0	2	3
TD-5	Assess the health care needs of your population using reports from Health Care Information Line	1.6	1	0	1	3
TD-6	Assess the health care needs of your population using another systematic process (such as collecting additional data, conducting focus groups, etc.)	3.1	3	2	3	4.25
TD-7	Collaborate with the public health office on surveillance measures to support future program initiatives	2.3	2	2	2	3
Forecast and manage demand and capacity						
TF-8	Work with the Group Practice Manager (GPM) to analyze demand-forecasting information	3.6	4	2	4	5
TF-9	Participate in Military Treatment Facility (MTF) level decision-making on whether to use the direct care system or the Managed Care Support Contractor (MCSC) network to meet required demand	2.6	3	1	3	4

ITEM #	TASK	MEAN	MEDIAN	PERCENTILES		
				25	50	75
TF-10	Identify gaps between forecasted needs and medical service capability	3.1	3	2	3	4
TF-11	Ensure initiatives are in place to address identified gaps in the provision of healthcare (such as triage or other demand management activities)	3.3	4	2	4	4
TF-12	Support coding audits to evaluate coding practices by providers at your base	2.1	2	1	2	4
TF-13	Conduct coding audits to evaluate coding practices by providers at your base	0.9	0	0	0	1
<b>Proactively deliver preventive services to the enrolled population</b>						
TP-14	Coordinate proactive delivery of immunizations	3.1	3	2	3	4
TP-15	Coordinate proactive delivery of secondary preventive services (such as pap smears, or testicular exams) per evidence-based protocols	3.4	4	2	4	5
TP-16	Interpret data to provide information to individual PCM teams or clinics	4.1	4	3	4	5
TP-17	Review clinical preventive services provided to your population for comprehensiveness	3.6	4	3	4	5
<b>Manage medical and disease conditions</b>						
TM-18	Promote the use of evidence-based clinical practice guidelines and pathways	3.6	4	3	4	5
TM-19	Adapt clinical practice guidelines and pathways for use at your MTF	3.2	3	2	3	4
TM-20	Provide input into the adaptation of clinical practice guidelines and pathways for use at your MTF	3.5	4	3	4	4
TM-21	Advocate clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum	3.1	3	2	3	4

ITEM #	TASK	MEAN	MEDIAN	PERCENTILES		
				25	50	75
TM-22	Facilitate clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum	2.9	3	2	3	4
TM-23	Perform clinical case management for smooth delivery and continuity of condition and disease based services across the care continuum	2.2	2	1	2	3.25
TM-24	Maximize resources allocated by assisting with the deployment of best clinical and business practices	3.2	3	2	3	4
<b>Continually evaluates improvement in the population's health status and the delivery system's effectiveness/efficiency</b>						
TC-25	Engage information technologies to provide clinical outcome information to assist individual provider teams in developing and improving patient specific care plans	3.4	4	2	4	5
TC-26	Engage information technologies to provide clinical outcome information to improve entire condition management programs	3.4	4	3	4	4
TC-27	Engage both the direct and indirect delivery systems when problems are trended	3.0	3	2	3	4
TC-28	Assist in the collection of standardized clinical metrics when they are not provided by central collection	3.2	3	2.5	3	4
TC-29	Analyze PCM and MTF level measures developed	3.1	3	2	3	4
TC-30	Produce PCM and MTF level measures designed to evaluate both effectiveness of interventions and effectiveness of the system wide implementation of evidenced-based practice	2.8	3	2	3	4
TC-31	Use analysis to support the identification and prioritization of clinical areas/PCM teams requiring improvement	3.0	3	2	3	4
TC-32	Use analysis to identify best practices among clinical areas/PCM teams	2.4	2	1	2	3



ITEM #	TASK	MEAN	MEDIAN	PERCENTILES		
				25	50	75
Energize a total community approach to population health						
TE-33	Manage a medical inprocessing program for beneficiaries arriving at your base	3.5	4	2	4	5
TE-34	Conduct briefings at a medical inprocessing program for beneficiaries arriving at your base	2.8	4	0	4	5
TE-35	Provide advice to the base level Integrated Delivery System (IDS), Health and Wellness Center, or other agencies whose purpose is to develop and implement a plan to respond to community needs	2.0	2	1	2	3
TE-36	Collaborate with base level Integrated Delivery System (IDS), Health and Wellness Center, or other agencies whose purpose is to develop and implement a plan to respond to community needs	2.3	2	1	2	3
TE-37	Utilize community agencies and resources	2.4	3	1	3	3
TE-38	Coordinate MTF and community efforts to reduce ineffective consumption of health care	2.5	3	1.75	3	3
TE-39	Coordinate MTF and community efforts to increase usage of health promoting services	2.6	3	2	3	4
TE-40	Support programs directed at reducing or eliminating environmental conditions and lifestyle behaviors contributing to morbidity.	2.7	3	2	3	4

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## VITA

Jennifer Joy Hatzfeld was born in Tumi Chucua, Bolivia on [REDACTED]. Her parents, [REDACTED], served as missionaries and assisted in the completion of Bible translation into an indigenous language called "Ese Ejja." Upon graduation from Faith Academy High School, Jennifer entered nursing school at Biola University in La Mirada, California and joined the Air Force Reserve Officer Training Corps at California State University in Long Beach. Jennifer graduated from Biola University with her Bachelor's degree in nursing May 27, 1995 and was commissioned as a Second Lieutenant in the United States Air Force that same day.

Jennifer's first assignment was to the 77<sup>th</sup> Medical Group at McClellan Air Force Base, as a medical-surgical nurse. In 1997, she was assigned to the 51<sup>st</sup> Medical Group at Osan Air Base, Korea, where she worked on the inpatient medical-surgical unit. In 1998, Jennifer was then stationed at Aviano Air Base, Italy, where she was assigned to the 31<sup>st</sup> Medical Group, working in the Primary Care setting.

During her time at Aviano, Jennifer completed a Master's degree in Adult and Higher Education through the University of Oklahoma, and achieved certification in Medical Surgical nursing from the AACN. In 2001, she was selected and funded through the Air Force Institute of Technology to complete a master's degree in nursing at the University of Texas Health Science Center in San Antonio.

Jennifer is married to [REDACTED], and they have two young children,  
[REDACTED]